October 14, 2016

Mr. Kevin Gregory
Director, Consultant Management Bureau
NYS Dept. of Transportation
POD # 33
50 Wolf Road
Albany, NY 12232

Attention: Mr. Tony Palumbo

Re: PIN HMFR.00.302
Stewart International Airport | Site 336088
Newburgh, Orange County, New York
June and July 2016 PFCs Sampling

Dear Mr. Palumbo:

The following letter report summarizes the field investigative procedures and results of the sampling conducted in June and July 2016 on the Stewart International Airport property by HDR Engineering, Inc. (HDR) on behalf of New York State at the above-referenced site (Figure 1). Results for sampling conducted on the Stewart Air National Guard Base Site are presented under separate cover.

Sampling was conducted in accordance with HDR's original scope of work, approved by New York State Department of Transportation (NYSDOT) on June 15, 2016, as well as the request for additional sampling added later to include outfalls and the former demolition and burning facility (DBF), which was approved on June 23, 2016.

Field Investigative Procedures

On June 29-30 and July 5-6, 2016, HDR collected: soil samples from Geoprobes installed in the area of the concentrate tank/historical release and former FedEx plane fire; groundwater samples from select existing monitoring wells at the former DBF; and surface water samples from select outfalls within the Stewart International Airport property as identified by the New York State Department of Conservation (NYSDEC). In addition, quality control/quality assurance (QA/QC) samples were collected. Sampling information is included in the field notes and logs provided as Attachment A.

Prior to commencement of sampling, field instrumentation was calibrated according to the respective manufacturer's standards, and instrumentation and re-useable

equipment were decontaminated using perfluorinated chemical (PFC)-free water and alconox. Sampling was conducted in accordance with the PFCs Sampling Checklist, which was attached to our scope of work. NYSDEC was on-site providing oversight of all field investigation activities conducted with the exception of the overnight work conducted on the airfield. Airport personnel were on-site providing oversight of the Geoprobes and outfall sampling. Airport personnel also provided the utility mark-out for the Geoprobe sampling and therefore were on-site to provide direction with regard to locations and hand-clearing of these sample points.

Soil samples were collected from nine Geoprobe locations (SB001 through SB009) shown on Figure 2. Each location was first cleared by hand and/or with the use of an air knife and compressor in the event of shallow, unknown utilities. One shallow soil sample was collected from each location using a decontaminated stainless steel hand auger from 0.5 ft below ground surface (bgs). A Geoprobe drill rig, utilizing direct push technology, was then used to install a boring at each location at approximate four ft intervals. Borings ranged in depth from 12 to 18 ft bgs. Two additional samples were collected at each location from the approximate middle of the boring and the approximate bottom of the boring. In general, the material was observed to be very dense re-worked till with no evidence of staining or odors. As the material was extremely dense, installation of and extraction of Geoprobe tooling was challenging. The borings were installed to depths as were feasible considering the nature of the geology and time constraints associated with working adjacent to the airport runway and taxiways. Although groundwater in the area was expected to be encountered between six to 10 ft bgs, the material overall was observed to be dry with very few intervals revealing moisture.

Groundwater samples were collected from four existing groundwater monitoring wells (DBF-MW-1 and DBF-MW-3 through DBF-MW-5) shown on Figure 3. Static water levels were collected from all four wells and one additional well (DBF-MW-2); the remaining well (DBF-MW-6) was dry. Each well was purged using low-flow sampling techniques with a peristaltic pump and stainless steel-weighted high density polyethylene (HDPE) and silicon tubing. Groundwater samples were collected directly from the tubing upon stabilization of the field parameters (temperature, turbidity, dissolved oxygen (DO), pH, specific conductivity, total dissolved solids (TDS), and oxidation-reduction potential (ORP)). Samples were transferred to clean, HDPE, laboratory-supplied containers for analysis of PFCs.

Surface water samples were collected from outfalls identified by NYSDEC on the Stewart International Airport property (SWF-OF-003, -005, -008, -010, 011, and -013) shown on Figure 4. The outfall samples were collected by direct-filling the sample containers or using a stainless steel dip bucket lowered down with nylon rope and then

filling the sample containers from the bucket. A dip bucket was used at locations SWF-OF-008 and SWF-OF-010 to better access the flow from the pipe associated with the outfall as opposed to the stream or ponded area in front of the outfall, at the direction of NYSDEC, to ensure representative water of the outfall itself at each location. Surface water samples were transferred to clean, HDPE, laboratory-supplied containers for analysis of PFCs. As recommended by NYSDEC the samples were collected during low flow/dry weather conditions, to avoid potential dilution of samples. Field parameters of temperature, turbidity, DO, pH, specific conductivity, TDS, and ORP were collected during sampling at each location (see Attachment A).

QA/QC One soil field duplicate was collected from Geoprobe soil sample interval SB007 – 16 ft and one surface water duplicate was collected from outfall 011 (SWF-OF-011). The duplicate samples were collected at the same time and for the same parameters as the respective parent samples. The duplicate samples were given "fictitious" sample IDs as to not indicate to the laboratory that they were duplicate samples. One matrix spike/matrix spike duplicate (MS/MSD) sample was collected for soil (SB003 – 12 ft) and one for surface water (SWF-OF-013). Equipment rinseate (field) blanks and decontamination water blanks were collected once per day of sampling. The field blanks collected in association with the groundwater sampling were performed by rinsing the dedicated ¼" HDPE and silicon tubing and decontaminated stainless steel weight nuts, hose clamps and/or check valve and the field blanks associated with the soil sampling were performed by rinsing the decontaminated macro-core and stainless steel hand auger. The field blank associated with the outfall sampling was performed by rinsing the decontaminated stainless steel bucket. Rinse water was then transferred to the laboratory-supplied sample containers. Water used for decontamination was direct-filled into the laboratory-supplied containers. Note that although requested, trip blanks were not collected. As directed by the laboratory, analysis of trip blanks requires an extraction and is therefore not applicable to the project.

Results

Soil and aqueous samples were analyzed by the subcontracted laboratory TestAmerica, Inc. to maintain continuity with previous sampling conducted on the site by NYSDEC. TestAmerica's Denver laboratory analyzed the samples under SOP WS-LC-0025, Modified Method 537 UCMR List. The analyte list includes the following six PFCs: perfluorobutane sulfonate (PFBS), perfluoroheptanoic acid (PFHpA), perfluorononanoic acid (PFNA), perfluorooctanoic acid (PFOA), perfluorohexane sulfonate (PFHxS), and perfluorooctanesulfonic acid (PFOS). Samples were analyzed at a 15 day turnaround time and delivered in a Category B data package with NYSDEC EQuIS EDD. Results are summarized on Tables 1, 2, and 3 for soil, groundwater and

surface water, respectively. Results are also displayed graphically on Figures 2, 3 and 4. Figure 5 is an overall sampling location figure that shows soil, groundwater and surface water sampling locations as well as pertinent site features and the three release areas identified on the commercial side as provided by the Airport.

Soil results from the sampling of the Geoprobes are presented on Table 1 and Figure 2 and were compared to the residential soil screening levels established by EPA Region 4 (EPA Memorandum dated November 20, 2009) for PFOA (16,000,000 nanograms per kilogram [ng/kg]) and PFOS (6,000,000 ng/kg). A copy of the analytical laboratory data is presented in Attachment B.

Detectable concentrations of one or more of the six PFCs analyzed were identified in the borings installed at each of the nine locations; however, the results were all well below the EPA Region 4 residential soil screening levels. As described above three samples were collected from each location: one from the surface (0.5 ft bgs), one from the approximate mid-point of the boring (ranging from 4.5 ft to 13 ft bgs depending on location) and one from the approximate bottom of each boring (ranging from 10.5 to 18 ft bgs depending on location). Detectable concentrations were limited to the 0.5 ft interval in all locations, with the exception of boring SB007 where detectable concentrations were also found in the sample collected below the shallow surface soil sample at 4.5 ft bgs. The sample collected from the bottom of the boring at SB007 (16 ft bgs) was non-detect for the PFCs analyzed. In all of the remaining boring locations, both samples collected from below the respective surface soil samples were non-detect for the PFCs analyzed.

Overall, detectable concentrations of PFOA ranged from 290 (estimated below the quantitation limit) to 5,680 ng/kg compared to the EPA Region 4 residential soil screening level of 16,000,000 ng/kg. Detectable concentrations of PFOS ranged from 5,940 to 1,840,000 ng/kg (diluted sample) compared to the EPA Region 4 residential soil screening level of 6,000,000 ng/kg.

Groundwater results from the sampling of the existing monitoring wells are presented on Table 2 and Figure 3 and were compared to the EPA lifetime health advisory of 70 ng/l for the sum of PFOA and PFOS (EPA, May 2016). Field parameters are provided in the field notes presented in Attachment A. A copy of the analytical laboratory data is presented in Attachment B.

Note that the existing wells sampled are constructed of polyvinyl chloride (PVC). At the recommendation of the NYSDEC, the samples were collected for screening purposes and with the assumption that any interference from the PVC would only potentially contribute very low level concentrations. This assumption is supported by non-

detectable levels of PFOS and PFOA in wells DBF-MW-1 and DBF-MW-5, which are constructed of PVC.

Figure 3 also displays the groundwater contours. Based on the static groundwater level measurements and calculations of groundwater elevation, groundwater elevations, contours and flow direction confirmed what would be expected for the shallow groundwater in the area considering the surrounding topography and hydrologic setting.

Detectable concentrations of one or more of the six PFCs analyzed were identified in monitoring wells DBF-MW-3 through DBF-MW-5. In the samples collected from DBF-MW-3 and DBF-MW-4, the respective sums of PFOA and PFOS were greater than the EPA health advisory of 70 ng/l for the sum of PFOA and PFOS. DBF-MW-3 exhibited the highest concentrations of PFOA (600 ng/l) and PFOS (340 ng/l) of the groundwater samples analyzed; the sum of these analytes was 940 ng/l. This well is located on the northeastern side and downgradient from the former DBF area. Concentrations detected in the sample collected from DBF-MW-4 were the same order of magnitude in concentration as DBF-MW-3; the sum of the PFOA (540 ng/l) and PFOS (120 ng/l) concentrations detected was 660 ng/l. DBF-MW-4 is located on the eastern side and downgradient from the former DBF area. Although the sample collected from DBF-MW-5 revealed a low-level concentration of PFHpA, PFOA and PFOS were not detected at the respective analytical reporting limits. There were no detectable concentrations of any of the PFCs analyzed in the sample collected from DBF-MW-1, which is located on the western side and upgradient from the former DBF area.

Surface water results from the sampling of the outfalls are presented on Table 3 and Figure 4 and were compared to the EPA lifetime health advisory of 70 ng/l for the sum of PFOA and PFOS. Field parameters are provided in the field notes presented in Attachment A. A copy of the analytical laboratory data is presented in Attachment B.

Detectable concentrations of one or more of the six PFCs analyzed were identified in all surface water samples. Although low level concentrations of PFHxS were identified in the sample collected from SWF-OF-011 and its duplicate, PFOA and PFOS were not detected at the respective analytical reporting limits in these samples. PFOA was also not detected in the sample collected from SWF-OF-005. In the remaining samples, detectable concentrations of PFOA ranged from 15 to 40 ng/l and detectable concentrations of PFOS ranged from 19 to 280 ng/l. The sum of PFOA and PFOS was greater than the EPA health advisory of 70 ng/l in the samples collected from SWF-OF-008 (306 ng/l), SWF-OF-010 (177 ng/l) and SWF-OF-013 (170 ng/l).

QAQC sampling was conducted as discussed above. There were no detectable

concentrations of any of the PFCs analyzed in the equipment rinseate (field blank) samples or the decontamination water blank samples collected. Duplicate samples were collected from soil boring SB007 16 ft (SBDUP) and outfall SWF-OF-011 (SWF-OF). The relative percent differences (RPDs) were calculated using the following formula:

$$\% \text{ RPD} = \frac{X_1 - X_2}{(X_1 + X_2)/2} * 100\%$$

where, X1 is the original value (parent sample), and
X2 is the duplicate value

RPD was not calculated for results where both samples were non-detect as good reproducibility is implied in this instance, as was the case for the soil duplicate and all but one of the parameters in the surface water duplicate. The RPD for this parameter was 7%. The results of the RPD calculation indicate the results are within precision standards for both sampling and laboratory protocols.

MS/MSD samples were collected from soil boring SB003 12 ft and outfall SWF-OF-013.

The lab indicated internal standard responses outside acceptance limits for soil QC samples collected for the Stewart project and attributed it to matrix interference; however, the surrogates, method blank, and laboratory control sample (LCS) were all within acceptable limits; therefore, the data is usable as reported. Note that the laboratory also reported QC results for samples not collected as part of the Stewart project, which are not being used to assess QA/QC.

The lab indicated that PFOS failed the high range of the recovery criteria for the MS sample result for the surface water sample. The MSD sample result; however, was within the acceptable range of recovery indicating a potential issue with sample homogeneity and not necessarily a matrix effect; therefore, this likely does not impact the usability of the data.

The lab indicated that PFBS failed the low range of the recovery criteria for the LCS associated with the surface water and groundwater data. The recovery was 69% and the acceptable range is 70-134%. The samples were re-run, out of hold time, and reported in the data package. As the recovery was only slightly below the acceptable limits, this does not impact the usability of the data. The initial sample results have been summarized in this report and results for PFBS have been marked as having the LCS outside of acceptable limits and sample results should be considered estimated.

Additional laboratory QC results (e.g., surrogate recovery, method blank, internal standard and retention time) were all within acceptable limits.

If you have any questions or need additional information, please do not hesitate to contact me.

Sincerely,

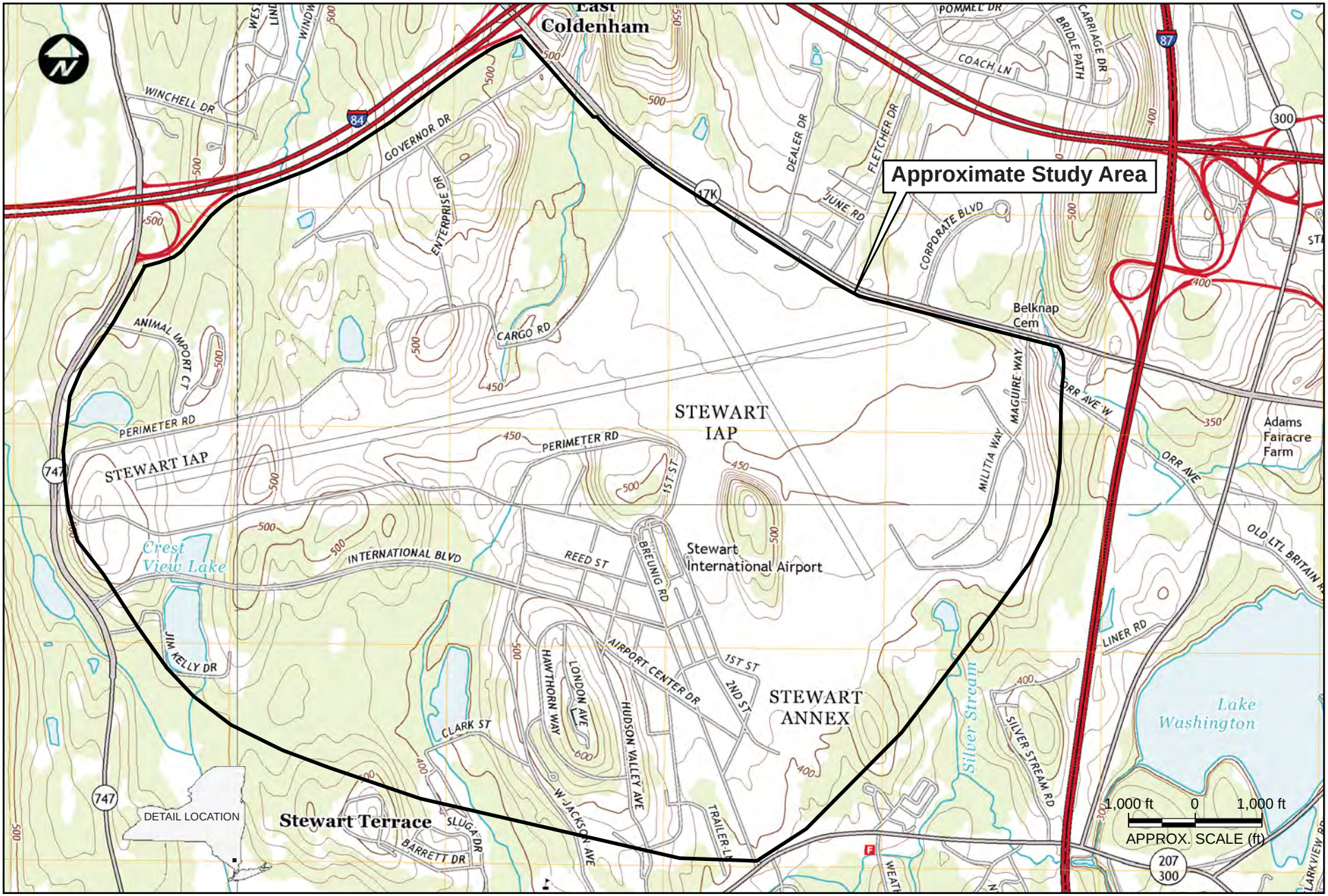
_____

Melissa E. LaMacchia
Associate | Project Manager

cc: J. Bass, NYSDOT

Attachments

FIGURES



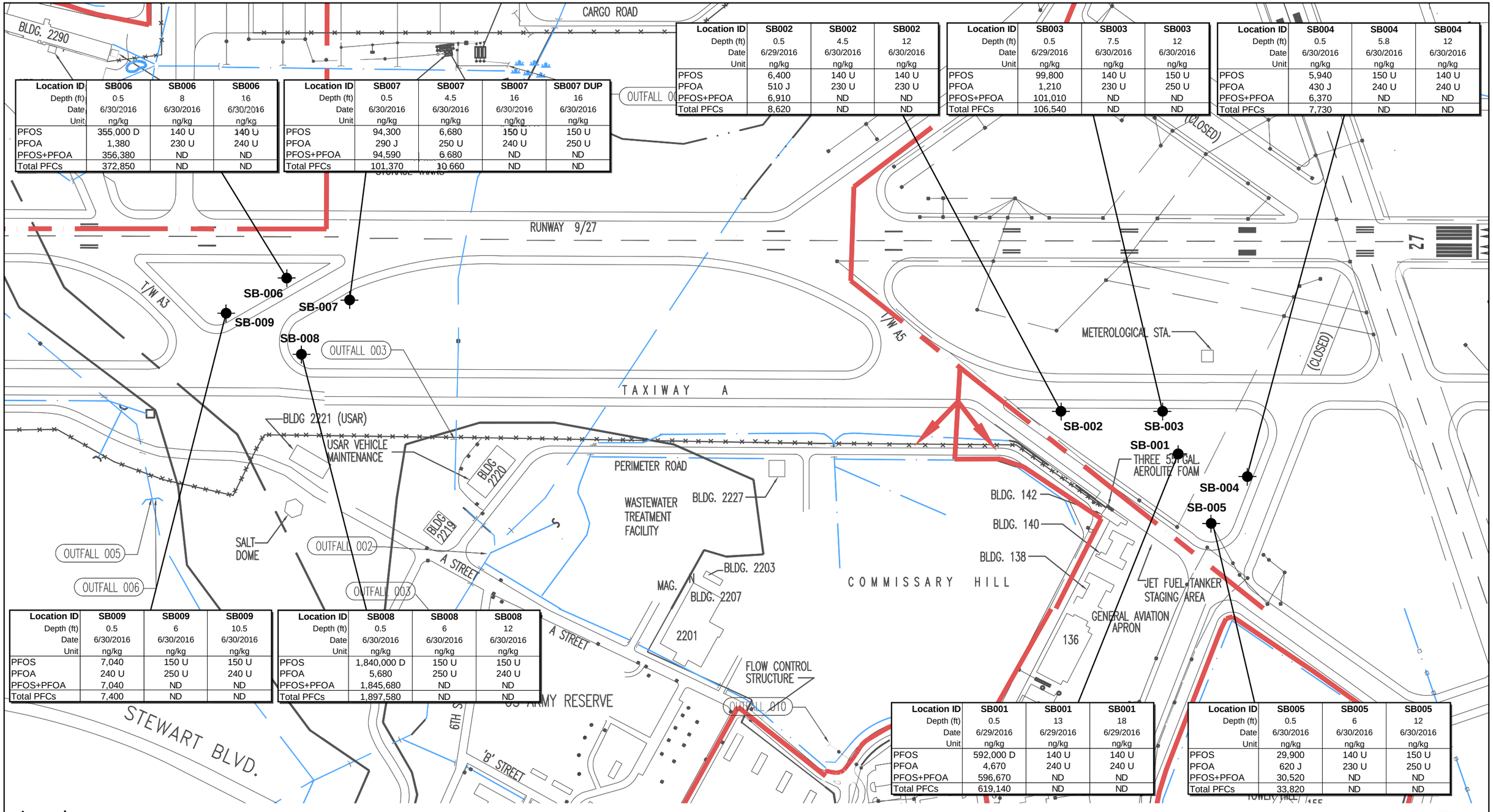
HDR Engineering, Inc.
1 International Blvd.
Mahwah, NJ 07495

Map source: USGS 7.5-min. Quadrangle Series: Cornwall-on-Hudson, NY, 2013; Maybrook, NY, 2013; Newburgh, NY, 2013; Walden, NY, 2013.

Approximate Study Area Location

Stewart International Airport - New York Air National Guard
Newburgh, NY

Figure 1



Location ID	SB006	SB006	SB006
Depth (ft)	0.5	8	16
Date	6/30/2016	6/30/2016	6/30/2016
Unit	ng/kg	ng/kg	ng/kg
PFOS	355,000 D	140 U	140 U
PFOA	1,380	230 U	240 U
PFOS+PFOA	356,380	ND	ND
Total PFCs	372,850	ND	ND

Location ID	SB007	SB007	SB007	SB007 DUP
Depth (ft)	0.5	4.5	16	16
Date	6/30/2016	6/30/2016	6/30/2016	6/30/2016
Unit	ng/kg	ng/kg	ng/kg	ng/kg
PFOS	94,300	6,680	150 U	150 U
PFOA	290 J	250 U	240 U	250 U
PFOS+PFOA	94,590	6,680	ND	ND
Total PFCs	101,370	10,660	ND	ND

Location ID	SB002	SB002	SB002
Depth (ft)	0.5	4.5	12
Date	6/29/2016	6/30/2016	6/30/2016
Unit	ng/kg	ng/kg	ng/kg
PFOS	6,400	140 U	140 U
PFOA	510 J	230 U	230 U
PFOS+PFOA	6,910	ND	ND
Total PFCs	8,620	ND	ND

Location ID	SB003	SB003	SB003
Depth (ft)	0.5	7.5	12
Date	6/29/2016	6/30/2016	6/30/2016
Unit	ng/kg	ng/kg	ng/kg
PFOS	99,800	140 U	150 U
PFOA	1,210	230 U	250 U
PFOS+PFOA	101,010	ND	ND
Total PFCs	106,540	ND	ND

Location ID	SB004	SB004	SB004
Depth (ft)	0.5	5.8	12
Date	6/30/2016	6/30/2016	6/30/2016
Unit	ng/kg	ng/kg	ng/kg
PFOS	5,940	150 U	140 U
PFOA	430 J	240 U	240 U
PFOS+PFOA	6,370	ND	ND
Total PFCs	7,730	ND	ND

Location ID	SB009	SB009	SB009
Depth (ft)	0.5	6	10.5
Date	6/30/2016	6/30/2016	6/30/2016
Unit	ng/kg	ng/kg	ng/kg
PFOS	7,040	150 U	150 U
PFOA	240 U	250 U	240 U
PFOS+PFOA	7,040	ND	ND
Total PFCs	7,400	ND	ND

Location ID	SB008	SB008	SB008
Depth (ft)	0.5	6	12
Date	6/30/2016	6/30/2016	6/30/2016
Unit	ng/kg	ng/kg	ng/kg
PFOS	1,840,000 D	150 U	150 U
PFOA	5,680	250 U	240 U
PFOS+PFOA	1,845,680	ND	ND
Total PFCs	1,897,580	ND	ND

Location ID	SB001	SB001	SB001
Depth (ft)	0.5	13	18
Date	6/29/2016	6/29/2016	6/29/2016
Unit	ng/kg	ng/kg	ng/kg
PFOS	592,000 D	140 U	140 U
PFOA	4,670	240 U	240 U
PFOS+PFOA	596,670	ND	ND
Total PFCs	619,140	ND	ND

Location ID	SB005	SB005	SB005
Depth (ft)	0.5	6	12
Date	6/30/2016	6/30/2016	6/30/2016
Unit	ng/kg	ng/kg	ng/kg
PFOS	29,900	140 U	150 U
PFOA	620 J	230 U	250 U
PFOS+PFOA	30,520	ND	ND
Total PFCs	33,820	ND	ND

Legend

PFOS Perfluorooctane Sulfonic Acid
PFOA Perfluorooctanoic Acid
PFCs Perfluorinated Chemicals
Soil Boring Location
D Diluted
U Not Detected
J Estimated
ND Not Detected

Note:

EPAR4 Residential Soil (PFOA) 16,000,000 ng/kg
EPAR4 Residential Soil (PFOS) 6,000,000 ng/kg
All results are in ngkg

0 400 ft
SCALE (ft)

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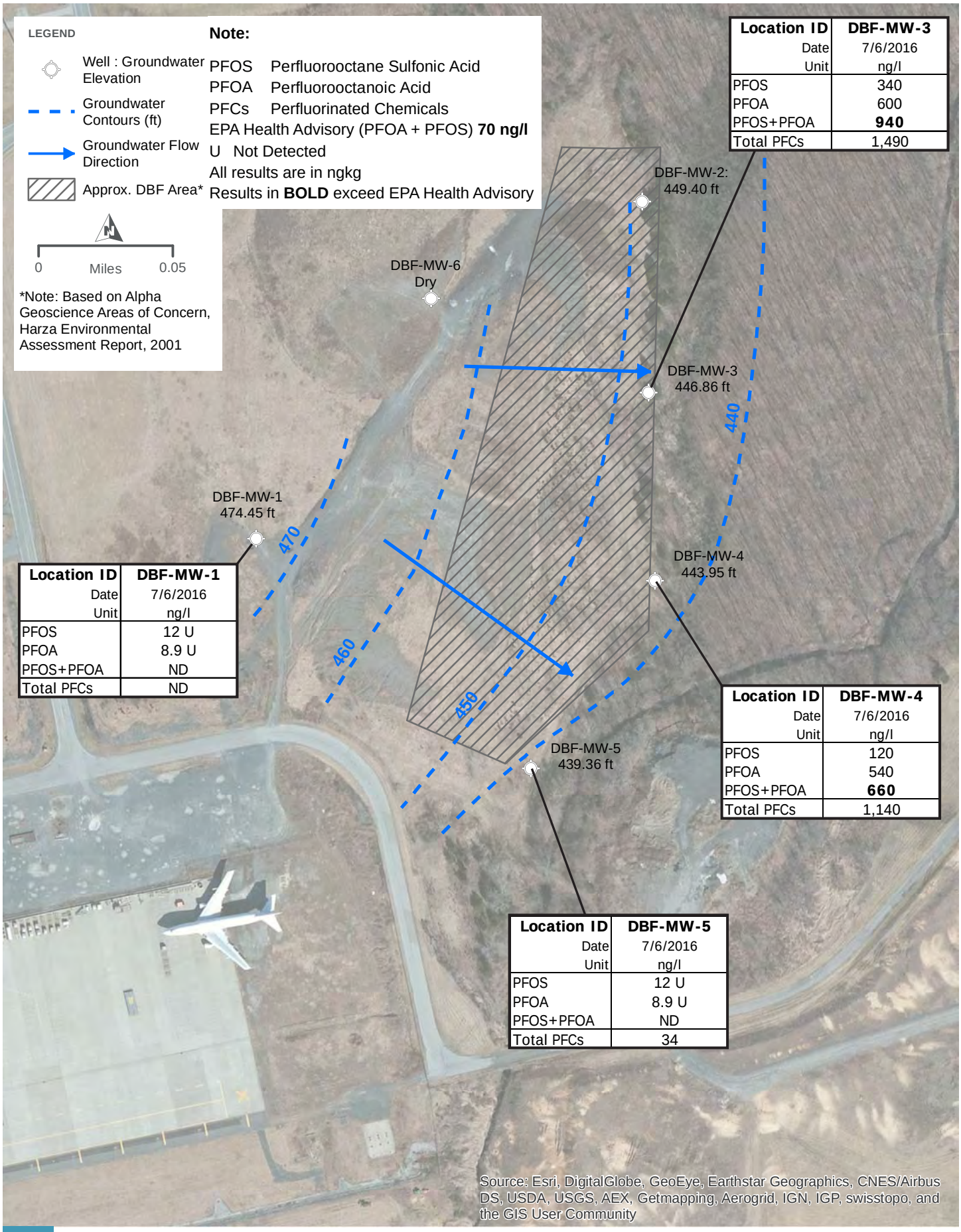
Soil Boring Sampling Results

Stewart International Airport
Newburgh, NY

Figure 2



Location ID	DBF-MW-1
Date	7/6/2016
Unit	ng/l
PFOS	12 U
PFOA	8.9 U
PFOS+PFOA	ND
Total PFCs	ND

Location ID	DBF-MW-3
Date	7/6/2016
Unit	ng/l
PFOS	340
PFOA	600
PFOS+PFOA	**940**
Total PFCs	1,490

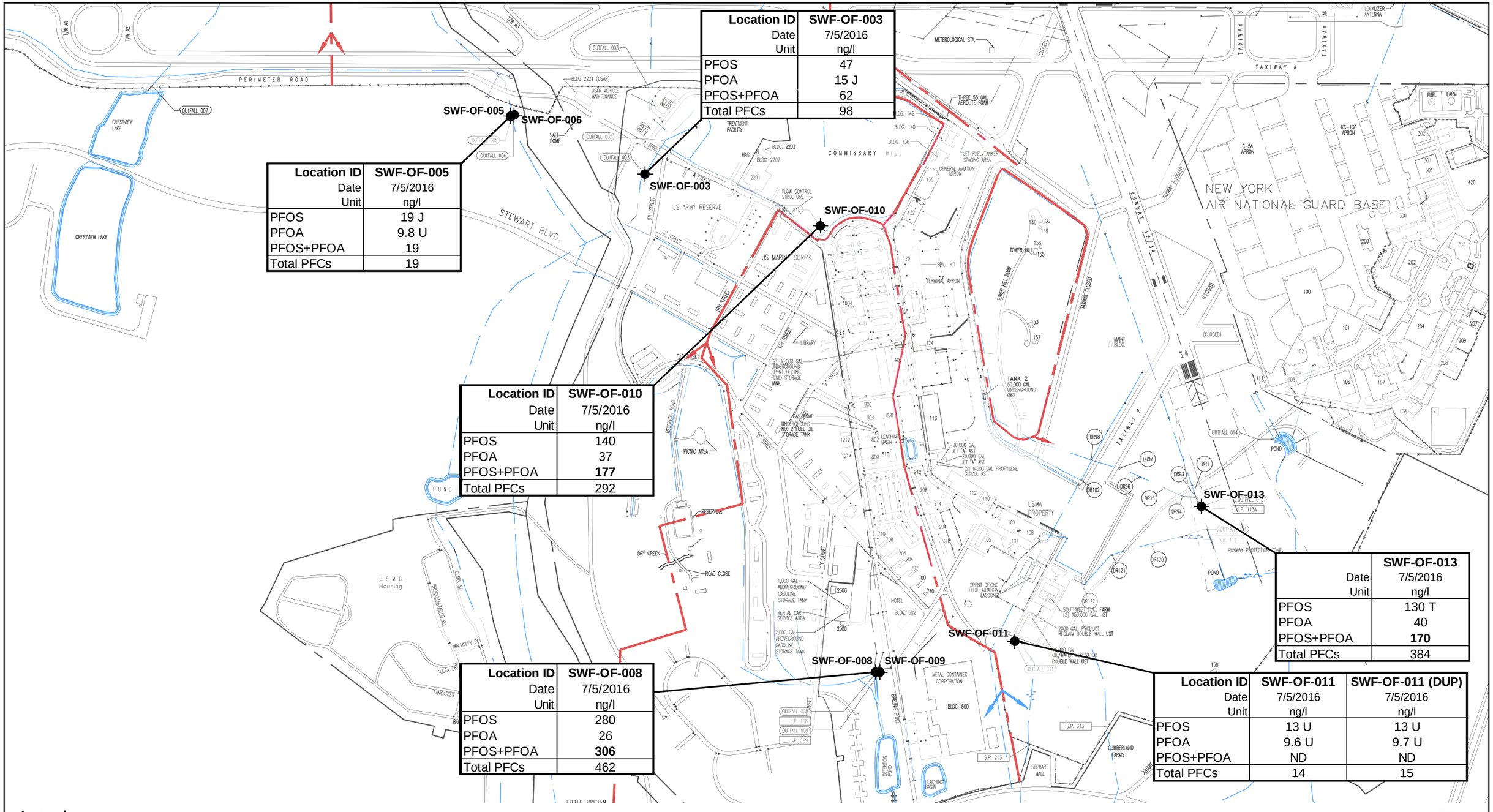
Location ID	DBF-MW-4
Date	7/6/2016
Unit	ng/l
PFOS	120
PFOA	540
PFOS+PFOA	**660**
Total PFCs	1,140

Location ID	DBF-MW-5
Date	7/6/2016
Unit	ng/l
PFOS	12 U
PFOA	8.9 U
PFOS+PFOA	ND
Total PFCs	34

GROUNDWATER RESULTS AND CONTOURS

SWF FORMER DEMOLITION & BURNING FACILITY - NEWBURGH, NY

FIGURE 3



Location ID	SWF-OF-003
Date	7/5/2016
Unit	ng/l
PFOS	47
PFOA	15 J
PFOS+PFOA	62
Total PFCs	98

Location ID	SWF-OF-005
Date	7/5/2016
Unit	ng/l
PFOS	19 J
PFOA	9.8 U
PFOS+PFOA	19
Total PFCs	19

Location ID	SWF-OF-010
Date	7/5/2016
Unit	ng/l
PFOS	140
PFOA	37
PFOS+PFOA	**177**
Total PFCs	292

Location ID	SWF-OF-013
Date	7/5/2016
Unit	ng/l
PFOS	130 T
PFOA	40
PFOS+PFOA	**170**
Total PFCs	384

Location ID	SWF-OF-008
Date	7/5/2016
Unit	ng/l
PFOS	280
PFOA	26
PFOS+PFOA	**306**
Total PFCs	462

Location ID	SWF-OF-011	SWF-OF-011 (DUP)
Date	7/5/2016	7/5/2016
Unit	ng/l	ng/l
PFOS	13 U	13 U
PFOA	9.6 U	9.7 U
PFOS+PFOA	ND	ND
Total PFCs	14	15

Legend

PFOS Perfluorooctane Sulfonic Acid
PFOA Perfluorooctanoic Acid
PFCs Perfluorinated Chemicals

Outfall Location

ND Not Detected
U Not Detected
J Estimated

T MS and/or MSD Recovery is outside acceptance limits

All results are in ngkg

Note:

EPA Health Advisory (PFOA + PFOS) 70 ng/l

Results in **BOLD** exceed EPA Health Advisory

0 800 ft

SCALE (ft)

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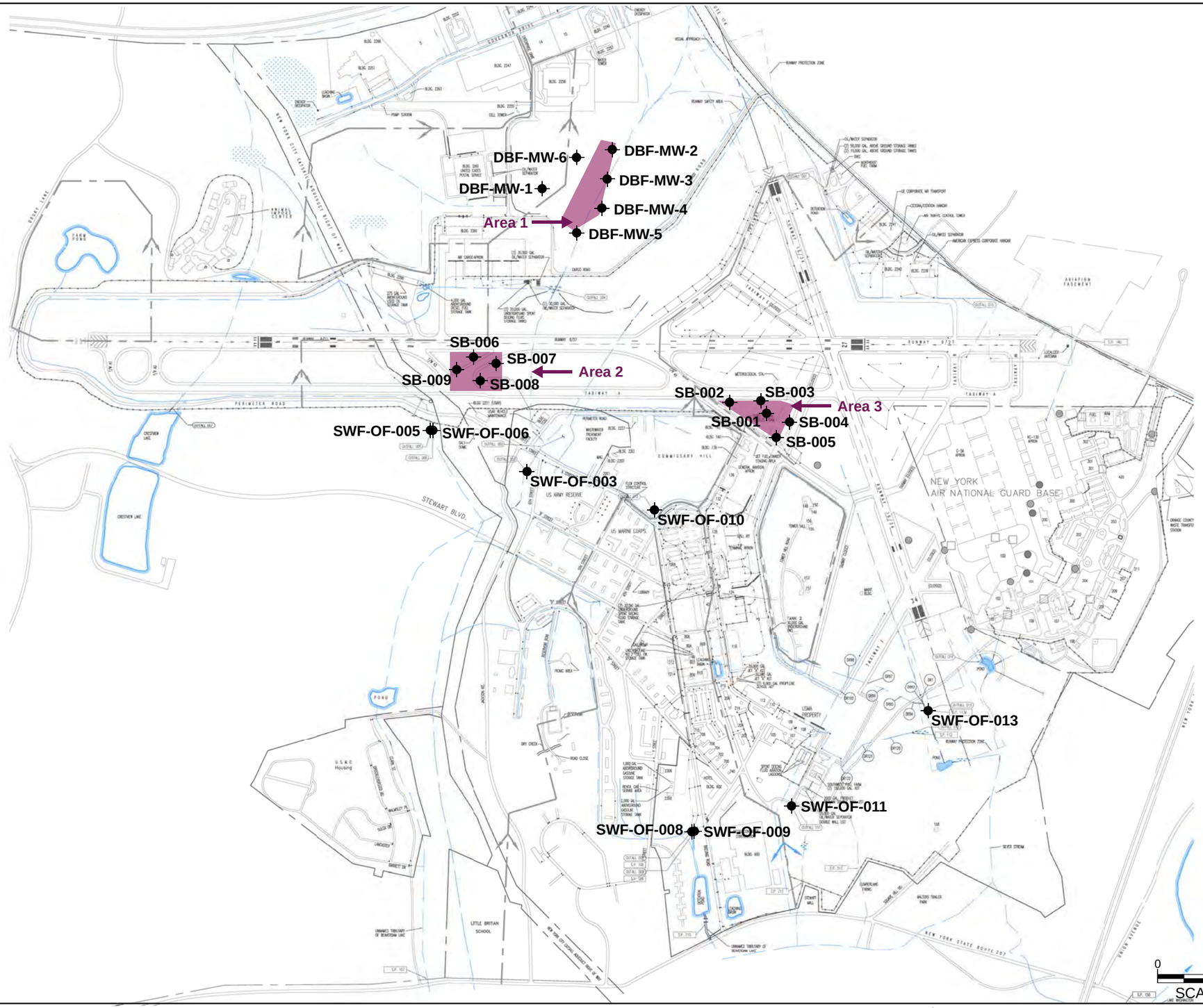
Surface Water Sampling Results

Stewart International Airport
Newburgh, NY

Figure 4



Legend

- Sample ID
- Foam Discharge Area

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Sampling Locations

Stewart International Airport
Newburgh, NY

Figure 5

TABLES

TABLE 1 - PFCs IN SOIL
STEWART INTERNATIONAL AIRPORT SOIL GEOPROBES

Location ID Date Depth (ft) Unit	EPAR4 Residential Soil (ng/kg)	SB001 6/29/2016 0.5 ng/kg	SB001 6/29/2016 13 ng/kg	SB001 6/29/2016 18 ng/kg	SB002 6/29/2016 0.5 ng/kg	SB002 6/30/2016 4.5 ng/kg	SB002 6/30/2016 12 ng/kg	SB003 6/29/2016 0.5 ng/kg
Analyte								
Perfluorobutane Sulfonate (PFBS)	NS	510 J	820 U	830 U	830 U	800 U	780 U	950 U
Perfluoroheptanoic Acid (PFHpA)	NS	1940	820 U	830 U	360 J	800 U	780 U	900 J
Perfluorohexane Sulfonate (PFHxS)	NS	17300	820 U	830 U	910 J	800 U	780 U	990
Perfluorononanoic Acid (PFNA)	NS	2720	820 U	830 U	440 J	800 U	780 U	3,640
Perfluorooctane Sulfonic Acid (PFOS)	6,000,000	592,000 D	820 U	830 U	6,400	800 U	780 U	9,980
Perfluorooctanoic acid (PFOA)	16,000,000	4670	820 U	830 U	510 J	800 U	780 U	1,210
Sum of PFOS + PFOA	NS	596,670	ND	ND	6,910	ND	ND	101,010
Total PFCs	NS	619,140	ND	ND	8,620	ND	ND	106,540

General Notes:

ng/kg - nanograms per kilogram

NS - no applicable standard

Qualifier Notes:

U -- Not detected above the reporting detection limit.

J -- Estimated Concentration

D -- Diluted sample

Comparison Criteria:

NS - No applicable standard for this parameter

TABLE 1 - PFCs IN SOIL
STEWART INTERNATIONAL AIRPORT SOIL GEOPROBES

Location ID Date Depth (ft) Unit	EPAR4 Residential Soil (ng/kg)	SB003 6/30/2016 7.5 ng/kg	SB003 6/30/2016 12 ng/kg	SB004 6/30/2016 0.5 ng/kg	SB004 6/30/2016 5.8 ng/kg	SB004 6/30/2016 12 ng/kg	SB005 6/30/2016 0.5 ng/kg	SB005 6/30/2016 6 ng/kg
Analyte								
Perfluorobutane Sulfonate (PFBS)	NS	810 U	860 U	810 U	840 U	820 U	830 U	810 U
Perfluoroheptanoic Acid (PFHpA)	NS	810 U	860 U	810 U	840 U	820 U	270 J	810 U
Perfluorohexane Sulfonate (PFHxS)	NS	810 U	860 U	1,360	840 U	820 U	3,030	810 U
Perfluorononanoic Acid (PFNA)	NS	810 U	860 U	810 U	840 U	820 U	830 U	810 U
Perfluorooctane Sulfonic Acid (PFOS)	6,000,000	810 U	860 U	5,940	840 U	820 U	29,900	810 U
Perfluorooctanoic acid (PFOA)	16,000,000	810 U	860 U	430 J	840 U	820 U	620 J	810 U
Sum of PFOS + PFOA	NS	ND	ND	6,370	ND	ND	30,520	ND
Total PFCs	NS	ND	ND	7,730	ND	ND	33,820	ND

General Notes:

ng/kg - nanograms per kilogram

NS - no applicable standard

Qualifier Notes:

U -- Not detected above the reporting detection limit.

J -- Estimated Concentration

D -- Diluted sample

Comparison Criteria:

NS - No applicable standard for this parameter

TABLE 1 - PFCs IN SOIL
STEWART INTERNATIONAL AIRPORT SOIL GEOPROBES

Location ID Date Depth (ft) Unit	EPAR4 Residential Soil (ng/kg)	SB005 6/30/2016 12 ng/kg	SB006 6/30/2016 0.5 ng/kg	SB006 6/30/2016 8 ng/kg	SB006 6/30/2016 16 ng/kg	SB007 6/30/2016 0.5 ng/kg	SB007 6/30/2016 4.5 ng/kg	SB007 6/30/2016 16 ng/kg
Analyte								
Perfluorobutane Sulfonate (PFBS)	NS	860 U	580 J	820 U	820 U	280 J	860 U	850 U
Perfluoroheptanoic Acid (PFHpA)	NS	860 U	1,350	820 U	820 U	890 U	860 U	850 U
Perfluorohexane Sulfonate (PFHxS)	NS	860 U	13,900	820 U	820 U	6,500	3,980	850 U
Perfluorononanoic Acid (PFNA)	NS	860 U	640 J	820 U	820 U	890 U	860 U	850 U
Perfluorooctane Sulfonic Acid (PFOS)	6,000,000	860 U	355,000 D	820 U	820 U	94,300	6,680	850 U
Perfluorooctanoic acid (PFOA)	16,000,000	860 U	1,380	820 U	820 U	290 J	860 U	850 U
Sum of PFOS + PFOA	NS	ND	356,380	ND	ND	94,590	6,680	ND
Total PFCs	NS	ND	372,850	ND	ND	101,370	10,660	ND

General Notes:

ng/kg - nanograms per kilogram

NS - no applicable standard

Qualifier Notes:

U -- Not detected above the reporting detection limit.

J -- Estimated Concentration

D -- Diluted sample

Comparison Criteria:

NS - No applicable standard for this parameter

TABLE 1 - PFCs IN SOIL
STEWART INTERNATIONAL AIRPORT SOIL GEOPROBES

Location ID Date Depth (ft) Unit	EPAR4 Residential Soil (ng/kg)	SB007 DUP 6/30/2016 16 ng/kg	SB008 6/30/2016 0.5 ng/kg	SB008 6/30/2016 6 ng/kg	SB008 6/30/2016 12 ng/kg	SB009 6/30/2016 0.5 ng/kg	SB009 6/30/2016 6 ng/kg	SB009 6/30/2016 10.5 ng/kg
Analyte								
Perfluorobutane Sulfonate (PFBS)	NS	860 U	1,840	880 U	850 U	830 U	880 U	830 U
Perfluoroheptanoic Acid (PFHpA)	NS	860 U	3,030	880 U	850 U	830 U	880 U	830 U
Perfluorohexane Sulfonate (PFHxS)	NS	860 U	41,400	880 U	850 U	360 J	880 U	830 U
Perfluorononanoic Acid (PFNA)	NS	860 U	5,630	880 U	850 U	830 U	880 U	830 U
Perfluorooctane Sulfonic Acid (PFOS)	6,000,000	860 U	1,840,000 D	880 U	850 U	7,040	880 U	830 U
Perfluorooctanoic acid (PFOA)	16,000,000	860 U	5,680	880 U	850 U	830 U	880 U	830 U
Sum of PFOS + PFOA	NS	ND	1,845,680	ND	ND	7,040	ND	ND
Total PFCs	NS	ND	1,897,580	ND	ND	7,400	ND	ND

General Notes:

ng/kg - nanograms per kilogram

NS - no applicable standard

Qualifier Notes:

U -- Not detected above the reporting detection limit.

J -- Estimated Concentration

D -- Diluted sample

Comparison Criteria:

NS - No applicable standard for this parameter

TABLE 2 - PFCs IN GROUNDWATER
STEWART INTERNATIONAL AIRPORT EXISTING MONITORING WELLS

Location ID / Date / Unit		EPA Health Advisory (ng/l)	DBF-MW-1 7/6/2016 ng/l	DBF-MW-3 7/6/2016 ng/l	DBF-MW-4 7/6/2016 ng/l	DBF-MW-5 7/6/2016 ng/l
Analyte	**CAS_RN**					
Perfluorobutane Sulfonate (PFBS)	29420-43-3	NS	7.5 U*	39 *	32 *	7.5 U*
Perfluoroheptanoic Acid (PFHpA)	375-85-9	NS	12 U	60	130	34
Perfluorohexane Sulfonate (PFHxS)	108427-53-8	NS	6.3 U	390	280	6.4 U
Perfluorononanoic Acid (PFNA)	375-95-1	NS	16 U	61	37 J	16 U
Perfluorooctane Sulfonic Acid (PFOS)	1763-23-1	NS	12 U	340	120	12 U
Perfluorooctanoic acid (PFOA)	335-67-1	NS	8.9 U	600	540	8.9 U
Sum of PFOS + PFOA		70	ND	**940**	**660**	ND

General Notes:

ng/l - nanograms per liter
NS - no applicable standard

Qualifier Notes:

U -- Not detected above the reporting detection limit.
J -- Estimated Concentration
D -- Diluted sample
* -- LCS outside acceptance limits, concentration is estimated
ND -- Not detected

Comparison Criteria:

NS - No applicable standard for this parameter
bold - indicates exceedance of EPA Drinking Water Health Advisory for PFOA and PFOS

TABLE 3 - PFCs IN SURFACE WATER
STEWART INTERNATIONAL AIRPORT OUTFALLS

Location ID Date Unit		EPA Health Advisory (ng/l)	SWF-OF-003 7/5/2016 ng/l	SWF-OF-005 7/5/2016 ng/l	SWF-OF-008 7/5/2016 ng/l	SWF-OF-010 7/5/2016 ng/l	SWF-OF-011 7/5/2016 ng/l
Analyte	**CAS_RN**						
Perfluorobutane Sulfonate (PFBS)	29420-43-3	NS	8.4 U*	8.2 U*	15 J*	8.2 U*	8.1 U*
Perfluoroheptanoic Acid (PFHpA)	375-85-9	NS	15 J	13 U	21 J	35	13 U
Perfluorohexane Sulfonate (PFHxS)	108427-53-8	NS	21 J	7 U	120	80	14 J
Perfluorononanoic Acid (PFNA)	375-95-1	NS	18 U	17 U	17 U	17 U	17 U
Perfluorooctane Sulfonic Acid (PFOS)	1763-23-1	NS	47	19 J	280	140	13 U
Perfluorooctanoic acid (PFOA)	335-67-1	NS	15 J	9.8 U	26	37	9.6 U
Sum of PFOS + PFOA		70	62	19	**306**	**177**	ND

General Notes:

ng/l - nanograms per liter

NS - no applicable standard

Qualifier Notes:

U -- Not detected above the reporting detection limit.

J -- Estimated Concentration

D -- Diluted sample

T -- MS and/or MSD Recovery is outside acceptance limits

ND -- Not detected

* -- LCS outside acceptance limits, concentration is estimated

Comparison Criteria:

NS - No applicable standard for this parameter

bold - indicates exceedance of EPA Drinking Water Health Advisory for PFOA and PFOS

TABLE 3 - PFCs IN SURFACE WATER
STEWART INTERNATIONAL AIRPORT OUTFALLS

	Location ID	EPA Health Advisory (ng/l)	SWF-OF-011 (DUP)	SWF-OF-013
	Date		7/5/2016	7/5/2016
	Unit		ng/l	ng/l
Analyte	**CAS_RN**			
Perfluorobutane Sulfonate (PFBS)	29420-43-3	NS	8.2 U*	20 T*
Perfluoroheptanoic Acid (PFHpA)	375-85-9	NS	13 U	24 J
Perfluorohexane Sulfonate (PFHxS)	108427-53-8	NS	15 J	170
Perfluorononanoic Acid (PFNA)	375-95-1	NS	17 U	17 U
Perfluorooctane Sulfonic Acid (PFOS)	1763-23-1	NS	13 U	130 T
Perfluorooctanoic acid (PFOA)	335-67-1	NS	9.7 U	40
Sum of PFOS + PFOA		70	ND	**170**

General Notes:

ng/l - nanograms per liter

NS - no applicable standard

Qualifier Notes:

U -- Not detected above the reporting detection limit.

J -- Estimated Concentration

D -- Diluted sample

T -- MS and/or MSD Recovery is outside acceptance limits

ND -- Not detected

* -- LCS outside acceptance limits, concentration is estimated

Comparison Criteria:

NS - No applicable standard for this parameter

bold - indicates exceedance of EPA Drinking Water Health Advisory for PFOA and PFOS

ATTACHMENT A

Project:	SWF/ANG PEIs	Computed:	Date: 6/29/16
Subject:	SWF Soil borings	Checked:	Date:
Task:		Page:	of:
Job #:		No:	

1200 Arrive on site @ Airport Ops
Scott England (HDR) on site
John Hoffmeister (HDR) on site
Priest Wolf (PW) Rig on site Crew out picking up rental compressor
Bill (PW)
Russ (PW)

1220 John Hoffmeister checks in w/ Airport Ops, we will wait until all personal arrive to go thru security check in

1240 PW back on site w/ Compressor
Bill informs HDR that Sewer and Fiber optics are not clear on one call ticket
Bill has called in staff for approximate one call to meet out at site

1255 DEL oversight arrives on site
Scrub (DEL)
Scott (DEL)

1310 One call staff arrives on site

1315 Check in w/ ops and get badges
1320 Electrical inspector @ gate to airport.
1340 Mobilize to Soil boring locations adjacent to building 142
Flag locations w/ DEL
1400 PW begins to hand clear middle location w/ air knife
1500 Security Gunner Officer location clear @ 2' Switch to drilling
Prepare to Demob drive shaft.
Look for John Rivetto to discuss hand clears @ unverified locations
1410 Begin SB-001 First core starts @ 2' bgs, 4' cores
1600 Collect FB-4 From dedicated macro core sleeve and decanted handauger
1700 All personal return to ops to check out for evening break

6/29/16

Project:	SWF/ANG PFC Samples	Computed:	Date: 6/29:30/16
Subject:	SWF Soil Borings	Checked:	Date:
Task:		Page:	of:
Job #:		No:	

2315 Arrive @ Airport Ops
John Ifkovits (HDR)
Bill (PW)
Russ (PW)

2330 Scott Englert (HDR) on site
Weather Clear, Slight breeze, 68°F
Overnight activity will be borings @ Taxiway Alpha 5 / FedEx Ramp
2335 Check in w/ Airport Ops, Escort is Engineer → Morgan Scott (Severn)

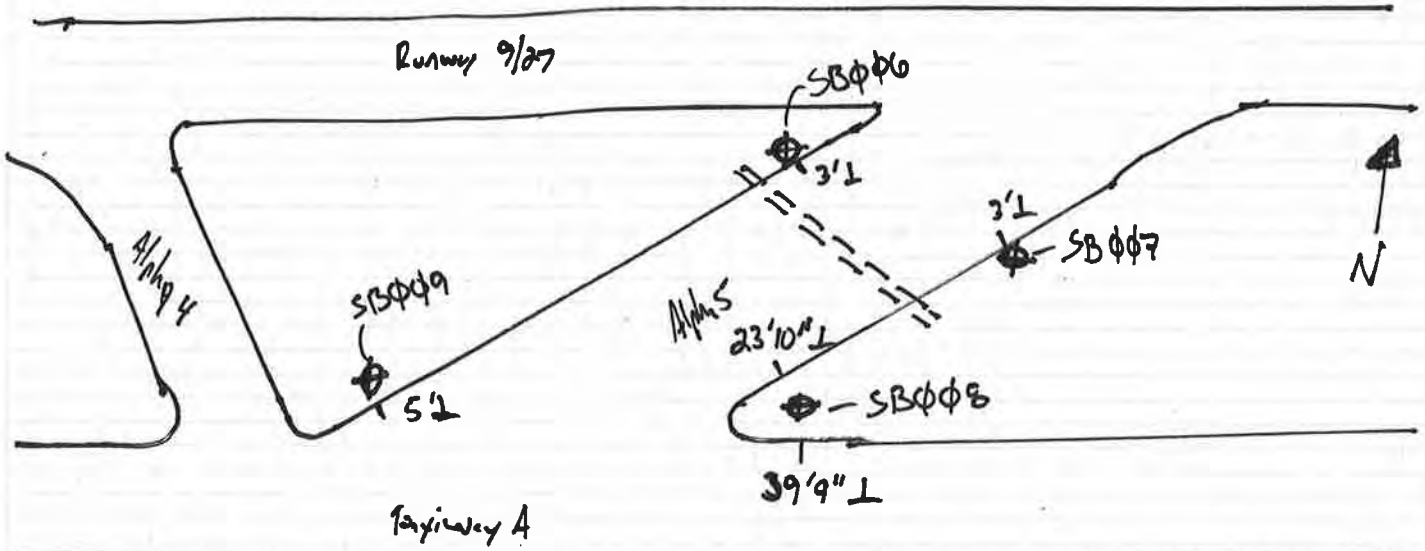
0000 Escort onto Airport to Drilling Staging area, hold for incoming flight
0030 Mobilize to A5, maintain standby w/ lights and support
0045 Hand clear to 1' as per Morgan Scott, collect Shallow Smpl from decon'd Hand Auger @ SB0006 @ 0030
0055 Begin macrocore sample collection; borings advancing to SB0006
0145 Mobilize to A5, SB0007, collect Shallow 0.5' Smpl from decon'd Hand Auger
0155 Begin macrocore sampling.
0235 Collect Samples @ SB0007
0250 Collect shallow smpl @ SB0009 w/ decon'd hand auger, decon auger
0300 Collect shallow Smpl @ SB0008 w/ decon'd hand auger
0315 PW completes hand clearing of SB0008; SB0005 to 1 foot per Engineer, Morgan Scott.
0320 Demobilize from Alpha 5 for overnight work, two custom SB0008; SB0009 further in the morning.
0340 Check out @ Airport ops. - All off site

6/30/16

Project:	SWF/ANG PFC Sampling	Computed:	Date: 6/30/16
Subject:	SWF Soil Borings	Checked:	Date:
Task:		Page:	of:
Job #:		No:	

1020 John Ifkovits (HDR) arrives @ Airport Ops to meet up w/ Scott Englet (HDR) and PW
Weather clear, light breez, 78°F
Activities will be complete SB00E & SB009 @ Alpha 5/FedEx fire location
1025 PW arrives on site & DECon site
Bill (PW)
Russ (PW)
Leroy Servis (DEC)
1030 Scott Englet (HDR) onsite ... Check in w/ Security @ Airport Ops.
1050 Vehicle inspection @ gate, hold for escort.
1110 Escort out to Alpha 5/FedEx fire, mobile to SB009
1120 Begin macro core sampling @ SB006
1205 Begin macro core Sample SB008

Sample location @ Taxiway Alpha 5 (FedEx plane fire) location



* ⊥ locations marked w/ white paint flick on pavement distance is perpindicular (⊥) offset from pavement

1242 off of SB009 holding for escort to 142 building location

Project: SWF/ANG PEC		Computed:	Date: 6/30/16
Subject: SWF Soil Borings		Checked:	Date:
Task:		Page:	of:
Job #:		No:	

1252 Mobilize to SB$\phi\phi$2, continue hand clearing to 1' for any surface/shallow utilities

1315 Begin advancing macrocore Sample @ SB$\phi\phi$2

1410 mobilize to SB$\phi\phi$3, continue clearing to 1'

1472 Begin advancing macrocore Sample @ SB$\phi\phi$3

1505 Mobalize to SB$\phi\phi$4 Adjacent to Taxiway Charlie, clear S.S. Auger, collect Shallow Sample @ 0.5' w/ clean Auger Drilled (PW) hand clear to 1' per Engineer.

1525 Begin advancing macrocore Sample @ SB$\phi\phi$4

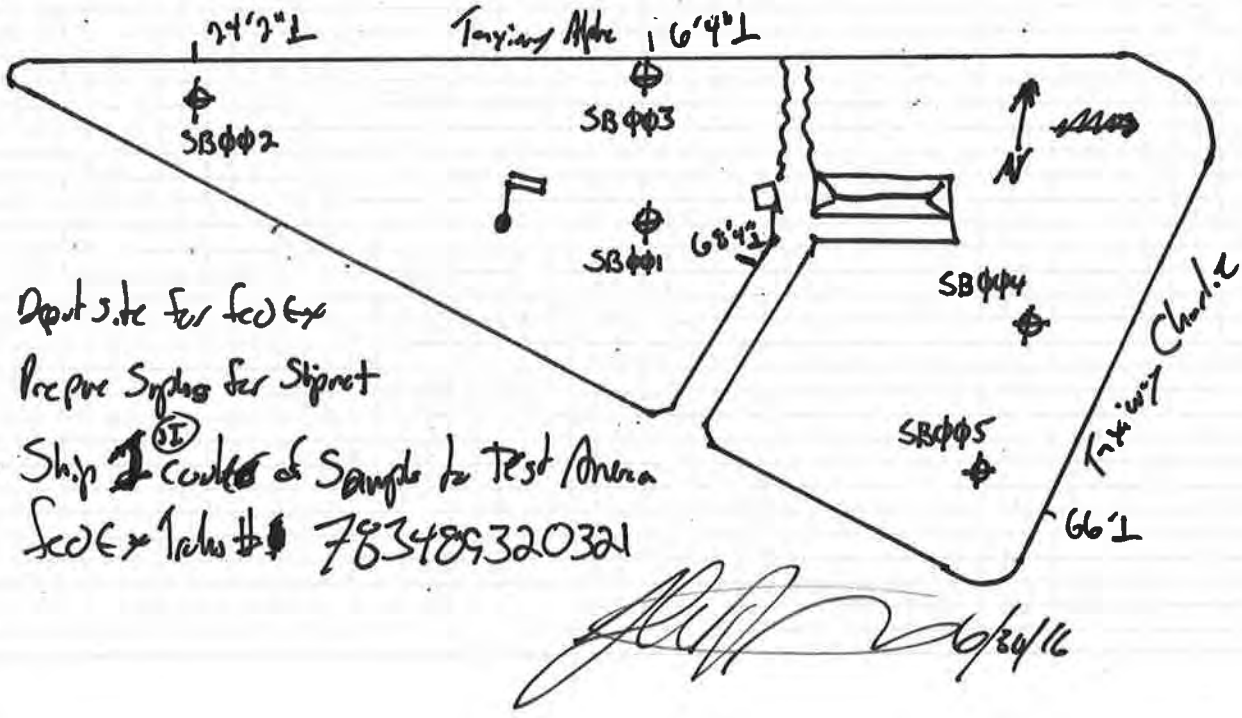
1540 collect field blank from macrocore sleeve and SS Auger FB-5@1540

1605 Mobilize to SB$\phi\phi$5, begin hand clear and collect shallow SS auger Sample @ 0.5'

1615 Begin advancing macrocore Sample @ SB$\phi\phi$5

Note: All location and Sample information on Sample boring logs

Sample locations @ Taxiway Charlie / Building 142



1700 Depart site for Fed Ex

Prepare Samples for Shipment

1730 Ship 2 (SI) coolers of Samples to Test America

Fed Ex Tracking # 783489320321

6/30/16

FIELD GEOLOGY BORING LOG

Boring SB-001
SURFACE ELEV
DATUM
SHEET 1 OF 1

PROJECT NAME SWF PFC

SITE LOCATION SWF Foam Test Area DATE 6-29-16 DRILLER NAME / COMPANY Parratt Wolff Inc.
MONITORING INSTRUMENTATION Visual HDR FIELD INSPECTOR JF / SGE

Depth (ft.)	Sample No.	Sample Depth (ft)	Geoprobe Sample: Recov. (ft.)	Geoprobe Sample: PID (ppm)	Sample Description	Remarks
0	1	2.1 - 0.0	3.9	N/A	dry grey gravelly fill - dense dark grey till (reworked) near bottom of sample dry throughout; no staining/odors	Hand clear to 2.1 ft
4	2	6.0 - 10.0	4.0	N/A	brown/tan - grey dry fill/till w/ some pieces of lesser gravel and shale fragments few moist clayey zones in bottom 0.5'	No oder No staining dry
8	3	10.0 - 14.0	4.0	N/A	grey - dk grey Fill/till; gravelly/ shattered rock in middle portion of sample then becomes siltier denser till in bottom foot	No oder No staining dry
12	4	14.0 - 18.0	~~4~~ 3.1	N/A	dk grey dry - slightly moist till less embedded gravel/broken rock fragments than in samples above	No oder No staining dry - Slight moist
16	5				Sample from 0.5 ft collected w/ hand auger	
20	6				Sample from 13 ft interval is from slightly moist area in till	
24	7					
28	8					
32					Sample SB-001 0.5 ft @ ~~1755~~	1655 (SGE)
					SB-001 18.0 ft @ ~~1755~~	1657
					SB-001 13.0 ft @ ~~1800~~	1700

NOTES:

WOR - Weight of Rods	Proportions	Blows per 1' Compaction	Pocket Pen. (Clays only)	Strata Descriptions	Strata Descriptions (cont'd)
WOH - Weight of Hammer	And - Equal	0 - 10 - Loose	< 0.5 - Soft	F - Fill	V
BOH - Bottom of Hole	Sandy - 31 - 49%	11 - 29 - Med. Compact	0.5 - 1.0 - Medium	O - Organic Deposits	T
NS - No Split Spoon Sample	Some - 13 - 30%	30 - 50 - Compact	1.0 - 4.0 - Stiff	S - Predominantly Sand	D
S___ - Split Spoon Sample	Trace - 1 - 12%	> 50 - V. Compact	> 4.0 - Hard	M - Predominantly Silt	R
U___ - Undisturbed Sample		50/6" - Refusal		C - Predominantly Clay	

FIELD GEOLOGY BORING LOG

Boring SB-002
SURFACE ELEV
DATUM
SHEET 1 OF 1

PROJECT NAME SWF PFC

SITE LOCATION SWF DATE 6/30/16 DRILLER NAME / COMPANY Parratt Wolff
MONITORING INSTRUMENTATION Visual HDR FIELD INSPECTOR JF / SGE

Depth (ft.)	Sample No.	Sample Depth (ft)	Geoprobe Sample: Recov. (ft.)	Geoprobe Sample: PID (ppm)	Sample Description	Remarks
0	1	1.0 - 4.0'	3.7'	N/A	dry tan-brown fill silt sand + gravel very rocky zone @ 2.6 - 3.1' above bottom 0.6' of sample that became dark grey till/fill no staining/no odor	difficult drilling
4	2	4.0 - 8.0'	4.0'	N/A	dark grey - olive grey dense dry till appears to be native material - few larger pieces of gravel embedded in matrix no staining / no odor	difficult drilling/ retrieval of tooling
8	3	8.0' - 12.0'	2.9'	N/A	similar to 4.0 - 8.0' interval in top 1.5 Ft broken rock fragments 1.5 - 2.3' then transitions back to dk grey till again dry throughout no staining/no odor	
12	4					
16	5					
20	6					
24	7					
28	8					
32					Collect sample SB-002 (0.5') @ ON Collect sample SB-002 (4.5') @ 1355 on Collect sample SB-002 (12.0') @ 1405	6/29/16 6/30/16 6/30/16

NOTES:

WOR - Weight of Rods	Proportions	Blows per 1' Compaction	Pocket Pen. (Clays only)	Strata Descriptions	Strata Descriptions (cont'd)
WOH - Weight of Hammer	And - Equal	0 - 10 - Loose	< 0.5 - Soft	F - Fill	V
BOH - Bottom of Hole	Sandy - 31 - 49%	11 - 29 - Med. Compact	0.5 - 1.0 - Medium	O - Organic Deposits	T
NS - No Spt Spoon Sample	Some - 13 - 30%	30 - 50 - Compact	1.0 - 4.0 - Stiff	S - Predominantly Sand	D
S___ - Spt Spoon Sample	Trace - 1 - 12%	> 50 - V. Compact	> 4.0 - Hard	M - Predominantly Silt	R
U___ - Undisturbed Sample		50/6" - Refusal		C - Predominantly Clay	

FIELD GEOLOGY BORING LOG

Boring: SB-003
SURFACE ELEV:
DATUM:
SHEET: 1 OF 1

PROJECT NAME: SWF ~~BFC~~
SITE LOCATION: SWF
DATE: 6/30/16
MONITORING INSTRUMENTATION: Visual
DRILLER NAME / COMPANY: Parratt Wolff
HDR FIELD INSPECTOR: JI / SGE

Depth (ft.)	Sample No.	Sample Depth (ft)	Geoprobe Sample: Recov. (ft.)	Geoprobe Sample: PID (ppm)	Sample Description	Remarks
0						
	1	1.0 - 4.0	3.0'	N/A	loose tan - lt. brown fill silt sand and gravel; very gravelly in a few thin zones; dry; no staining / no odor	
4						
	2	4.0 - 8.0'	3.9'	N/A	dk grey dense and moist till / fill generally less gravel than above; more sand and clay in discrete intervals; some shale fragments; very moist - wet in thin partings; No staining/No odor	
8						
	3	8.0 - 12.0'	3.5'	N/A	dk grey till (reworked ?) w/ varying gravel zones and sandy partings (moist to wet zones) Varying clay portion; no staining / no odor	
12						
	4					
16						
	5					
20						
	6					
24						
	7					
28						
	8		Sample from moist zone		Sample SB-003 (0.5') @ on 6/29/16	
			Sample from moist zone		Sample SB-003 (7.5') @ 1445 on 6/30/16	
32			Sample from moist zone		Sample SB-003 (12.0') @ 1450 on 6/30/16 (MS/MSD also)	

NOTES:

WOR - Weight of Rods
WOH - Weight of Hammer
BOH - Bottom of Hole
NS - No Split Spoon Sample
S___ - Split Spoon Sample
U___ - Undisturbed Sample

Proportions: And - Equal; Sandy - 31 - 45%; Some - 13 - 30%; Trace - 1 - 12%

Blows per 1' Compaction: 0 - 10 - Loose; 11 - 29 - Med. Compact; 30 - 50 - Compact; > 50 - V. Compact; 50/6" - Refusal

Pocket Pen. (Clays only): < 0.5 - Soft; 0.5 - 1.0 - Medium; 1.0 - 4.0 - Stiff; > 4.0 - Hard

Strata Descriptions: F - Fill; O - Organic Deposits; S - Predominantly Sand; M - Predominantly Silt; C - Predominantly Clay

Strata Descriptions (cont'): V; T; D; R

FIELD GEOLOGY BORING LOG

Boring SB-004
SURFACE ELEV
DATUM
SHEET 1 OF 1

PROJECT NAME SWF PFCs

SITE LOCATION SWF DATE 6/30/16 DRILLER NAME / COMPANY Parratt Wolff
MONITORING INSTRUMENTATION Visual HDR FIELD INSPECTOR J.I / SGE

Depth (ft.)	Sample No.	Sample Depth (ft)	Geoprobe Sample: Recov. (ft.)	Geoprobe Sample: PID (ppm)	Sample Description	Remarks
0	1	1.0 - 4.0	3.0'	N/A	loose, dry fill - brown tan and dk gray silt sand and small gravel throughout w/ tr. clay - only slightly moist in a few intervals large sandstone rock fragment in shoe; No staining/no odor	
4	2	4.0 - 8.0'	3.7'	N/A	dry - moist relatively dense dk grey till (reworked till) - Mostly clayey silt and sand w/ few pikes of larger gravel	moist zone @ 1.8' rock in shoe
8	3	8.0 - 12.0	3.8'	N/A	Sample same as above w/ slightly more gravel throughout; No staining No odor	
12	4					
16	5					
20	6					
24	7					
28	8					
32					Sample SB-004 (0.5') @ 1520 6/30/16 Sample SB-004 (5.8') @ 1545 6/30/16 Sample SB-004 (12.0') @ 1555 6/30/16	moist zone just below gravel EOB sample

NOTES:

WOR - Weight of Rods
WOH - Weight of Hammer
BOH - Bottom of Hole
NS - No Split Spoon Sample
S___ - Split Spoon Sample
U___ - Undisturbed Sample

Proportions: And - Equal; Sandy - 31 - 49%; Some - 13 - 30%; Trace - 1 - 12%

Blows per 1' Compaction: 0 - 10 - Loose; 11 - 29 - Med Compact; 30 - 50 - Compact; > 50 - V Compact; 50/0" - Refusal

Pocket Pen. (Clays only): < 0.5 - Soft; 0.5 - 1.0 - Medium; 1.0 - 4.0 - Stiff; > 4.0 - Hard

Strata Descriptions: F - Fill; O - Organic Deposits; S - Predominantly Sand; M - Predominantly Silt; C - Predominantly Clay

Strata Descriptions (cont'd): V; T; D; R

FIELD GEOLOGY BORING LOG

Boring SB-005
SURFACE ELEV
DATUM
SHEET 1 OF 1

PROJECT NAME SWF PFC

SITE LOCATION SWF DATE 6/30/16 DRILLER NAME / COMPANY Forsyth Wolff
MONITORING INSTRUMENTATION Visual HDR FIELD INSPECTOR JI / SGE

Depth (ft.)	Sample No.	Sample Depth (ft)	Geoprobe Sample: Recov. (ft.)	Geoprobe Sample: PID (ppm)	Sample Description	Remarks
0						
	1	1.0 - 4.0'	3.0'	N/A	dry grey fill silt sand and small gravel; generally loose w/ some embedded pieces of larger gravel; no staining / no odor	
4						
	2	4.0' - 8.0'	3.9'	N/A	dry, slightly moist dk grey till / reworked till / fill - some pieces of embedded med. gravel otherwise similar composition to above but more dense	No staining No odor
8						
	3	8.0 - 12.0'	4.6'	N/A	Similar to above interval but somewhat less gravel and slightly less dense / cohesive dry - slightly moist throughout; no staining / no odor	
12						
	4					
16						
	5					
20						
	6					
24						
	7					
28						
	8					
32						
					Sample SB-005 (0.5') @ Sample SB-005 (6.0') @ 1640 Sample SB-005 (12.0') @ 1650	

NOTES:

WOR - Weight of Rods	Percentages	Blows per 1' Compaction	Pocket Pen. (Clays only)	Strata Descriptions	Strata Descriptions (cont)
WOH - Weight of Hammer	And - Equal	0 - 10 - Loose	< 0.5 - Soft	F - Fill	V
BOH - Bottom of Hole	Sandy - 31 - 49%	11 - 29 - Med. Compact	0.5 - 1.0 - Medium	O - Organic Deposits	T
NS - No Split Spoon Sample	Some - 13 - 30%	30 - 50 - Compact	1.0 - 4.0 - Stiff	S - Predominantly Sand	D
S___ - Split Spoon Sample	Trace - 1 - 12%	> 50 - V. Compact	> 4.0 - Hard	M - Predominantly Silt	R
U___ - Undisturbed Sample		50/5" - Refusal		C - Predominantly Clay	

FIELD GEOLOGY BORING LOG

Boring: SB - 006
SURFACE ELEV:
DATUM:
SHEET: 1 OF 1

PROJECT NAME: SWF PFC
SITE LOCATION: SWF
DATE: 6/30/16
DRILLER NAME / COMPANY: Parrett Wolff
MONITORING INSTRUMENTATION: Visual
HDR FIELD INSPECTOR: JI / SGE

Depth (ft.)	Sample No.	Geoprobe Sample: Sample Depth (ft)	Geoprobe Sample: Recov. (ft.)	Geoprobe Sample: PID (ppm)	Sample Description	Remarks
0	1	1.0-4.0	3.2	N/A	Brown to grey/dk grey dry fill/ reworked till; mix of silt sand + gravel; no odor/no staining	Not very dense/ cohesive material
4	2	4.0-8.0	3.8	N/A	alternating zones of grey and brown fill/reworked till - similar composition as above; dry w/ no odor/no stainings	relatively loose/low density vs. native fill
8	3	8.0-12.0	4.0	N/A	Similar to above but increasing clay content and denser native till (brown and grey); dry w/ no odor or stainings	increased clay proportion esp in bottom 0.5 ft
12	4	12.0-16.0	4.0	N/A	Similar to above - still dry but mottling present in bottom 0.75 ft Varying density but becomes most dense in mottled zone	
16	5					
20	6					
24	7					
28	8				Samples SB-006(0.5') @ 0830 SB-006 (8.0') @ 0140 SB-006 (16.0') @ 0142	
32					hand cleared first foot of topsoil and took initial sample from 0.5 ft depth	

NOTES:

WOR - Weight of Rods	Proportions	Blows per 1' Compaction	Pocket Pen. (Clays only)	Strata Descriptors	Strata Descriptors (cont'd)
WOH - Weight of Hammer	And - Equal	0 - 10 - Loose	< 0.5 - Soft	F - Fill	V
BOH - Bottom of Hole	Sandy - 31 - 49%	11 - 29 - Med. Compact	0.5 - 1.0 - Medium	O - Organic Deposits	T
NS - No Split Spoon Sample	Some - 13 - 30%	30 - 50 - Compact	1.0 - 4.0 - Stiff	S - Predominantly Sand	D
S___ - Split Spoon Sample	Trace - 1 - 12%	> 50 - V. Compact	> 4.0 - Hard	M - Predominantly Silt	R
U___ - Undisturbed Sample		50/6" - Refusal		C - Predominantly Clay	

FIELD GEOLOGY BORING LOG

Boring: SB-007
SURFACE ELEV:
DATUM:
SHEET: 1 OF 1

PROJECT NAME: SWF PFCs
SITE LOCATION: SWF
DATE: 6/30/16
MONITORING INSTRUMENTATION: Visual
DRILLER NAME / COMPANY: Parratt Wolff
HDR FIELD INSPECTOR: JE / SGE

Depth (ft.)	Sample No.	Geoprobe Sample: Sample Depth (ft)	Geoprobe Sample: Recov. (ft.)	Geoprobe Sample: PID (ppm)	Sample Description	Remarks
0	1	1.0 - 4.0	3.0	N/A	Brown, tan, and grey relatively loose fill / reworked till - portions gravelly dry no oder / no staining; some shale fragments	Not very cohesive very dry
4	2	4.0 - 8.0	2.9	N/A	Similar to above except moist clayey zone in upper 0.6 ft - otherwise dry and not very cohesive; No oder / no staining	
8	3	8.0 - 12.0	4.0	N/A	denser brown and grey till w/ few minor gravelly zones - much more cohesive than above - some mottling; dry w/ no staining or odors	
12	4	12.0 - 16.0	3.1	N/A	Similar to 8.0-12.0 interval becoming dense dark grey till w/ embedded gravel dry throughout except very bottom 0.2'; no staining/no odors	
16	5					
20	6					
24	7					
28	8				Samples SB-007(0.5') new surface @ 0145 SB-007 (4.5') from moist zone SB-007 (16.0') also collect dupe SB-DUP@0200	
32						

probing and sampling @ N 0200 on morning of 6/30/16

hand clear topsoil / fill in top 1.0 ft Sample shallow horizon @ 0.5 ft SB-007(0.5')

NOTES:

WOR - Weight of Rods	Proportions	Blows per 1' Compaction	Pocket Pen. (Clays only)	Strata Descriptions	Strata Descriptions (cont'd)
WDH - Weight of Hammer	And - Equal	0 - 10 - Loose	< 0.5 - Soft	F - Fill	V
BOH - Bottom of Hole	Sandy - 31 - 49%	11 - 29 - Med. Compact	0.5 - 1.0 - Medium	O - Organic Deposits	T
NS - No Split Spoon Sample	Some - 13 - 30%	30 - 50 - Compact	1.0 - 4.0 - Stiff	S - Predominantly Sand	D
S___ - Split Spoon Sample	Trace - 1 - 12%	> 50 - V. Compact	> 4.0 - Hard	M - Predominantly Silt	R
U___ - Undisturbed Sample		50/6" - Refusal		C - Predominantly Clay	

FIELD GEOLOGY BORING LOG

Boring SB-008
SURFACE ELEV
DATUM
SHEET 1 OF 1

PROJECT NAME SWF PFC

SITE LOCATION SWF DATE 6/30/16 DRILLER NAME / COMPANY Parratt Wolff
MONITORING INSTRUMENTATION Visual HDR FIELD INSPECTOR JL / SGE

Depth (ft.)	Sample No.	Geoprobe Sample: Sample Depth (ft)	Geoprobe Sample: Recov. (ft.)	Geoprobe Sample: PID (ppm)	Sample Description	Remarks
0	1	1.0 - 4.0'	3.1'	N/A	dry loose silt sand and gravel mix - not very cohesive pieces of rock - appears to be all fill - becomes dk grey and more dense @ bottom of sample	brown + grey No staining No odors
4	2	4.0 - 8.0'	1.6'	N/A	dk grey and olive silt clay and sm gravel w/ little sand - noticeably darker color than above sample - moist to wet zone near bottom of sample	No staining No odors
8	3	8.0 - 12.0'	3.3'	N/A	mix of various fill materials sand silt + gravel gravelly in upper 1.5 ft thin zone of asphalt @ ~ 10 ft becomes more fill like - denser dk brown and dry in bottom ft of sample	No staining odor from asphalt None otherwise
12	4				EOB @ 12.0'	
16	5					
20	6					
24	7					
28	8					
32					Collect New Surface Sample SB-008 (0.5') @ 0300 SB-008 (6.0') @ 1220 SB-008 (12.0') @ 1230	

NOTES:

WOR - Weight of Rods	Proportions	Blows per 1' Compaction	Pocket Pen. (Clays only)	Strata Descriptions	Strata Descriptions (cont'd)
WOH - Weight of Hammer	And - Equal	0 - 10 - Loose	< 0.5 - Soft	F - Fill	V
BOH - Bottom of Hole	Sandy - 31 - 49%	11 - 29 - Med. Compact	0.5 - 1.0 - Medium	O - Organic Deposits	T
NS - No Split Spoon Sample	Some - 13 - 30%	30 - 50 - Compact	1.0 - 4.0 - Stiff	S - Predominantly Sand	D
S___ - Split Spoon Sample	Trace - 1 - 12%	> 50 - V. Compact	> 4.0 - Hard	M - Predominantly Silt	R
U___ - Undisturbed Sample		50/6" - Refusal		C - Predominantly Clay	

FIELD GEOLOGY BORING LOG

Boring SB-009
SURFACE ELEV
DATUM
SHEET OF

PROJECT NAME SWF PFC

SITE LOCATION SWF DATE 6/30/16 DRILLER NAME / COMPANY Parratt Wolff
MONITORING INSTRUMENTATION Visual HDR FIELD INSPECTOR JI / SGE

Depth (ft.)	Sample No.	Sample Depth (ft)	Geoprobe Sample: Recov. (ft.)	Geoprobe Sample: PID (ppm)	Sample Description	Remarks
0	1	1.0-4.0	2.1'	N/A	Moist brown and dk grey mottled fill silt sand and small gravel - few thin clayey zones w/ higher moisture no staining/no odor	Start Probing below 1ft hand clear
4	2	4.0-8.0	3.2'	N/A	0-1.2 wet clayey zone brown/gray mottled 1.2-1.4 dry grey clayey silt w/ rock fragments 1.4-2.3 dk grey silt+clay wet/moist 2.3-3.2 brown compacted till dry	
8	3	8.0-12.0	3.3'	N/A	dry reworked till / fill brown and dk grey mottled moist zone @ 1.4-1.8' and slightly sandier zone moist-wet @ 2.5'	Some small-med gravel throughout
12	4				EOB @ 12.0'	
16	5					
20	6					
24	7					
28	8					
32					Water had filled in hand cleared borehole to 1ft overnight	Collect new surface sample SB-009 (0.5') @ 0250 SB-009 (6.0') @ 1140 SB-009 (12.5') @ 1145

NOTES:

WOR - Weight of Rods	Proportions	Blows per 1' Compaction	Pocket Pen (Clays only)	Strata Descriptions	Strata Descriptions (cont'd)
WOH - Weight of Hammer	And - Equal	0 - 10 - Loose	< 0.5 - Soft	F - Fill	V
BOH - Bottom of Hole	Sandy - 31 - 45%	11 - 29 - Med Compact	0.5 - 1.0 - Medium	O - Organic Deposits	T
NS - No Split Spoon Sample	Some - 13 - 30%	30 - 50 - Compact	1.0 - 4.0 - Stiff	S - Predominantly Sand	D
S___ - Split Spoon Sample	Trace - 1 - 12%	> 50 - V Compact	> 4.0 - Hard	M - Predominantly Silt	R
U___ - Undisturbed Sample		50/6" - Refusal		C - Predominantly Clay	

July 5, 2016

SWF Outfall Sampling

OF-013 Rec Road Area

Calibrate YSI meter - check cal.
reads 4.52 pH on 4.00 Std.
reads 4.57 mS/cm on 4.49 Std.
reads 1.5 NTU on 0.0 Std.

1105 Collect Sample SWF-OF-013
2 bottles for Sample plus 4 add'l for MS/MSD

Sample chems
21.28°C 8.65 NTU
5.68 pH 9.06 mg/L DO
+241 ORP mV 1.75 g/L TDS
2.57 mS/cm

1140 SWF Outfall #11 Near Can Plant on Rec Rd before gate back to S Landfill area
Collect Sample SWF-OF-011 @ 1140 and blind duplicate SWF-OF (w/time of 1130)
Sample chems
18.95°C 1.60 NTU
7.62 pH 9.33 mg/L DO
+172 ORP mV 0.346 g/L TDS
0.539 mS/cm

1205 SWF-OF-ØØ8 Near field that was SWFF tank location along Breunig Rd.
Collect Sample from up in Concrete pipe @ DEC's request - water is about 1 ft deep in pipe and only slowly flowing out
Sample being careful to get fresh water from up in outfall pipe rather than anything displaced from standing in stream etc.

Sample Chems

18.78 °C	5.75 NTU
8.33 pH	9.18 mg/L DO
+130 ORP	0.517 g/L TDS
0.852 mS/cm	

1235 Outfall #010 in phragmites Island where Breunig Rd turns left across from terminal
Collect Sample SWF-OF-Ø1Ø
SWF-OF-Ø1Ø Collected 2 bottles @ 1235

20.07 °C	8.43 mg/L DO
8.59 pH	0.791 g/L TDS
+124 ORP	
9.06	

1300 SWF-OF-005 Strong flow here

Collect sample from flow suppressor / wing wall chamber

19.66° C 7.75 mg/L DO

8.25 pH 0.355 g/L TDS

+71

0.555 mS/cm

4.47 NTU

1325 SWF-OF-003 near airport gate / aqueduct

@ end of Brewing (Brooke St) Rd. (asphalt plant)

Gate #11

Secured outfall (rebar grate)

relatively deep @ outfall - large pipe but slow flow out of pipe

Chems @ sampling

21.65° C 9.37 mg/L DO

8.39 pH 0.614 g/L TDS

+116 ORPMV

0.958 mS/cm

14.0 NTU

7/6/16

Horiba Cal

run thru auto calibration sequence

reads 4.02 on 4.00 pH Standard

reads 4.51 mS/cm on 4.49 mS/cm std.

reads 0.28 NTU on 0.0 NTU turb. std.

Project: SWF/ANG PFC Sampling		Computed:	Date: 7/6/16
Subject: SWF Burn/Demo Area well sampling		Checked:	Date:
Task:		Page: 1	of:
Job #:		No:	

0845 Jonathan Bass (HDR) arrives @ gate to Burn/Demo Area on Cargo Road

0910 Scott Englert (HDR) arrives on site

0920 Lexy Servis of NYSDEC on site

0925 Mobilize inside gate, load rental truck w/ equipment & supplies
Drive off road to eastern wells to locate and begin synoptic round of water levels

Time	well ID	DTW	Datum notes
0940	DBF-MW-3	13.04'	notched protective casing
0950	DBF-MW-4	9.64'	notched 2" PVC well casing
1000	DBF-MW-5	15.80'	notched protective casing
1010	DBF-MW-1	11.81'	notched protective casing
1018	DBF-MW-6	DRY	
1035	DBF-MW-2	18.61'	notched 2" PVC well casing

1005 Jonathan Bass of ~~NYSDEC~~ on site.

1040 Complete synoptic round of water levels, mobilize to DBF-MW-3 to begin low flow purge & Sample w/ PFC approved materials and peristaltic geopump.

1115 Calibrate Horiba U-10

1125 Begin purge DBF-MW-3 @ 300ml/min

Time	temp	Ph	ORP	Cond	turb	DO	TDS
1127	20.21	4.90	+210	3.05 ms/cm	3.7	10.76 mg/L	2.06 g/L
1130	13.99	6.33	+71	1.11	0	7.18	.710
1135	13.61	6.27	+73	1.10	0	6.44	.706
1141	13.29	6.47	+83	1.09	0	5.04	.699

1145 collect DBF-MW-3 @ 1145

1154 collect FB-7 @ 1154 Decon'd tubing

1200 mobilize to DBF-MW-4 Jonathan Bass off site (NYSDOT)

1208 Begin purge DBF-MW-4

Continue next page

Project:	SWF/ANG PFC sampling	Computed:	Date: 7/6/16
Subject:	SWF Burn/Demo Area wells	Checked:	Date:
Task:		Page: 2	of
Job #:		No:	

DBF-MW-4

Time	temp	Ph	ORP	Cond	Turb	DO	TDS
1210	19.60	6.97	-136	.898	0	4.09	.574
1215	18.67	6.87	-162	.891	0	3.21	.571
1220	17.59	6.77	-170	.896	0	1.97	.572
1226	17.44	6.75	-176	.939	0	1.94	.600
1232	16.85	6.74	-179	.958	0	1.99	.613

1235 collect DBF-MW-4 @ 1235

1300 Begin purging DBF-MW-5 @ 270 mL/min

Time	temp	Ph	ORP	Cond	Turb	DO	TDS
1302	27.67	6.93	-111	.959	131	2.70	.613
1309	21.38	6.43	-81	.961	61.3	1.60	.614
1315	17.55	6.13	-66	1.07	39.7	1.15	.683
1324	16.72	6.05	-63	1.07	28.5	1.31	.687
1330	16.69	6.01	-62	1.08	11.3	1.36	.691
1331	17.07	5.97	-62	1.08	5.46	1.36	.690

1335 Sample DBF-MW-5 @ 1331

1340 mobilize to DBF-MW-1

1350 Begin purging DBF-MW-1 @ 270 ml/min

Time	temp	Ph	ORP	Cond	Turb	DO	TDS
1355	16.55	6.07	+71	.985	12	1.98	.631
1403	15.87	5.88	+132	.998	0	1.09	.638
1408	15.77	5.84	+146	1.01	0	1.07	.643
1415	15.66	5.72	+163	1.01	0	1.12	.644

1417 collect DBF-MW-1 @ 1417

1440 All off site - depart for FedEx for Sample shipment and Shipping

Weather ~90° F Heavy Heat

7/6/16

ATTACHMENT B

ANALYTICAL REPORT

Job Number: 280-85171-1

Job Description: Stewart International Airport (PFAS)

For:
HDR Inc
1 International Blvd, 10th Floor
Mahwah, NJ 07495

Attention: Ms. Melissa LaMacchia

Approved for release.
Shalini Williams
Project Management Assistant II
7/13/2016 11:05 AM

Designee for
Sapna Nayyar, Project Manager I
777 New Durham Road, Edison, NJ, 08817
sapna.nayyar@testamericainc.com
07/13/2016

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Table of Contents

Table of Contents

CASE NARRATIVE

Client: HDR Inc

Project: Stewart International Airport (PFAS)

Report Number: 280-85171-1

This case narrative is in the form of an exception report, where only the anomalies related to this report, method specific performance and/or QA/QC issues are discussed. If there are no issues to report, this narrative will include a statement that documents that there are no relevant data issues.

It should be noted that samples with elevated Reporting Limits (RLs) as a result of a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the RLs are unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes or interferences which exceed the calibration range of the instrument.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 7/1/2016 9:25 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.0º C.

Note: All samples which require thermal preservation are considered acceptable if the arrival temperature is within 2C of the required temperature or method specified range. For samples with a specified temperature of 4C, samples with a temperature ranging from just above freezing temperature of water to 6C shall be acceptable. Samples that are hand delivered immediately following collection may not meet these criteria, however they will be deemed acceptable according to NELAC standards, if there is evidence that the chilling process has begun, such as arrival on ice, etc.

PERFLUORINATED HYDROCARBONS (PFC)
Samples FB-4 (280-85171-1) and FB-5 (280-85171-25) were analyzed for Perfluorinated Hydrocarbons (PFC) in accordance with DV-LC-0012. The samples were prepared on 07/05/2016 and analyzed on 07/07/2016.

Internal standard responses were outside of acceptance limits for the following samples: SB001-0.5 (280-85171-2), SB006-0.5 (280-85171-7), SB008-0.5 (280-85171-15), (280-85171-A-2-B MS) and (280-85171-A-2-C MSD). The sample(s) shows evidence of matrix interference.

The samples were diluted, Method Blank and LCS was in control for internal standard.

Internal standard responses were outside of acceptance limits for the following samples: SB008-0.5 (280-85171-15), (280-85194-H-1-A), (280-85194-A-1-A MS) and (280-85194-G-1-A MSD). The sample(s) shows evidence of matrix interference.

The method blank and LCS were in control for Internal Standard, samples were low in recovery.

Surrogate recovery for the following samples was outside control limits: (280-85194-H-1-A) and (280-85194-A-1-A MS). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

13C8 PFOS failed high in the sample and MS at 140 and 149%, limits 45-130%.

13C8 PFOS failed the surrogate recovery criteria high for 280-85194-A-1-A MS.

Perfluorobutane Sulfonate (PFBS) and Perfluoroheptanoic acid (PFHpA) failed the recovery criteria low for the MS of sample 280-85194-1 in batch 280-332793.

Perfluorobutane Sulfonate (PFBS), Perfluoroheptanoic acid (PFHpA), Perfluorohexane Sulfonate (PFHxS) and Perfluorooctanoic acid (PFOA) failed the recovery criteria low for the MSD of sample 280-85194-1 in batch 280-332793.

Refer to the QC report for details.

The presence of the '4' qualifier in the data indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

Refer to the QC report for details.

No other difficulties were encountered during the PFC analysis.

All other quality control parameters were within the acceptance limits.

PERCENT SOLIDS/PERCENT MOISTURE

Samples SB001-0.5 (280-85171-2), SB001-13.0 (280-85171-3), SB001-18.0 (280-85171-4), SB002-0.5 (280-85171-5), SB003-0.5 (280-85171-6), SB006-0.5 (280-85171-7), SB006-8.0 (280-85171-8), SB006-16.0 (280-85171-9), SB007-0.5 (280-85171-10), SB007-4.5 (280-85171-11), SB-DUP (280-85171-12), SB007-16.0 (280-85171-13), SB009-0.5 (280-85171-14), SB008-0.5 (280-85171-15), SB009-6.0 (280-85171-16), SB009-10.5 (280-85171-17), SB008-6.0 (280-85171-18), SB008-12.0 (280-85171-19), SB002-4.5 (280-85171-20), SB002-12.0 (280-85171-21), SB003-7.5 (280-85171-22), SB003-12.0 (280-85171-23), SB004-0.5 (280-85171-24), SB004-5.8 (280-85171-26), SB004-12.0 (280-85171-27), SB005-0.5 (280-85171-28), SB005-6.0 (280-85171-29) and SB005-12.0 (280-85171-30) were analyzed for percent solids/percent moisture in accordance with EPA Method CLPISM01.2 (Exhibit D) Modified. The samples were analyzed on 07/07/2016.

No difficulties were encountered during the %solids/moisture analysis.

All quality control parameters were within the acceptance limits.

PERFLUORINATED HYDROCARBONS (PFC)

Samples SB001-0.5 (280-85171-2), SB001-13.0 (280-85171-3), SB001-18.0 (280-85171-4), SB002-0.5 (280-85171-5), SB003-0.5 (280-85171-6), SB006-0.5 (280-85171-7), SB006-8.0 (280-85171-8), SB006-16.0 (280-85171-9), SB007-0.5 (280-85171-10), SB007-4.5 (280-85171-11), SB-DUP (280-85171-12), SB007-16.0 (280-85171-13), SB009-0.5 (280-85171-14), SB008-0.5 (280-85171-15), SB009-6.0 (280-85171-16), SB009-10.5 (280-85171-17), SB008-6.0 (280-85171-18), SB008-12.0 (280-85171-19), SB002-4.5 (280-85171-20), SB002-12.0 (280-85171-21), SB003-7.5 (280-85171-22), SB003-12.0 (280-85171-23), SB004-0.5 (280-85171-24), SB004-5.8 (280-85171-26), SB004-12.0 (280-85171-27), SB005-0.5 (280-85171-28), SB005-6.0 (280-85171-29) and SB005-12.0 (280-85171-30) were analyzed for Perfluorinated Hydrocarbons (PFC) in accordance with DV-LC-0012. The samples were prepared on 07/05/2016 and analyzed on 07/07/2016 and 07/08/2016.

A deviation from the Standard Operating Procedure (SOP) occurred. Details are as follows: The samples were prepped with HPLC grade methanol instead of LCMS grade methanol because the company is no longer supplying LCMS methanol to the lab. This is a deviation from the SOP using the HPLC Methanol.

A deviation from the Standard Operating Procedure (SOP) occurred. Details are as follows: The samples were prepped with HPLC grade methanol instead of LCMS grade methanol because the company is no longer supplying LCMS methanol to the lab. This is a deviation from the SOP using the HPLC Methanol.

The following samples were spiked with an unverified surrogate and LCS. The standards are being run on the instrument before the samples were spiked. The standards will be verified before the samples are even finished extracted.

SB009-6.0 (280-85171-16), SB009-10.5 (280-85171-17), SB008-6.0 (280-85171-18), SB008-12.0 (280-85171-19), SB002-4.5 (280-85171-20), SB002-12.0 (280-85171-21), SB003-7.5 (280-85171-22), SB003-12.0 (280-85171-23), SB003-12.0 (280-85171-23[MS]), SB003-12.0 (280-85171-23[MSD]), SB004-0.5 (280-85171-24), SB004-5.8 (280-85171-26), SB004-12.0 (280-85171-27), SB005-0.5 (280-85171-28), SB005-6.0 (280-85171-29) and SB005-12.0 (280-85171-30)

The following samples were spiked with an unverified surrogate and LCS. The standards are being run on the instrument before the samples were spiked. The standards will be verified before the samples are even finished extracted.

SB001-0.5 (280-85171-2), SB001-13.0 (280-85171-3), SB001-18.0 (280-85171-4), SB002-0.5 (280-85171-5), SB003-0.5 (280-85171-6), SB006-0.5 (280-85171-7), SB006-8.0 (280-85171-8), SB006-16.0 (280-85171-9), SB007-0.5 (280-85171-10), SB007-4.5 (280-85171-11), SB-DUP (280-85171-12), SB007-16.0 (280-85171-13), SB009-0.5 (280-85171-14), SB008-0.5 (280-85171-15), (280-85171-A-2 MS) and (280-85171-A-2 MSD)

HPLC methanol was used instead of LCMS methanol due to the company not supplying LCMS methanol anymore. Batch: 332379, Prep Method: 3535, Analytical Method: PFC.

Perfluorooctanesulfonic acid (PFOS) failed the recovery criteria high for the MS of sample SB001-0.5MS (280-85171-2) in batch 280-333083.

Perfluorooctanesulfonic acid (PFOS) failed the recovery criteria low for the MSD of sample SB001-0.5MSD (280-85171-2) in batch 280-333083.

Refer to the QC report for details.

Samples SB001-0.5 (280-85171-2)[5X], SB006-0.5 (280-85171-7)[2X] and SB008-0.5 (280-85171-15)[20X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No other difficulties were encountered during the PFC analysis.

All other quality control parameters were within the acceptance limits.

Sample Summary

Client: HDR Inc
Project/Site: Stewart International Airport (PFAS)

TestAmerica Job ID: 280-85171-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-85171-1	FB-4	Water	06/29/16 16:00	07/01/16 09:25
280-85171-2	SB001-0.5	Solid	06/29/16 16:55	07/01/16 09:25
280-85171-3	SB001-13.0	Solid	06/29/16 17:00	07/01/16 09:25
280-85171-4	SB001-18.0	Solid	06/29/16 16:57	07/01/16 09:25
280-85171-5	SB002-0.5	Solid	06/29/16 17:14	07/01/16 09:25
280-85171-6	SB003-0.5	Solid	06/29/16 17:20	07/01/16 09:25
280-85171-7	SB006-0.5	Solid	06/30/16 00:30	07/01/16 09:25
280-85171-8	SB006-8.0	Solid	06/30/16 01:40	07/01/16 09:25
280-85171-9	SB006-16.0	Solid	06/30/16 01:42	07/01/16 09:25
280-85171-10	SB007-0.5	Solid	06/30/16 01:45	07/01/16 09:25
280-85171-11	SB007-4.5	Solid	06/30/16 02:10	07/01/16 09:25
280-85171-12	SB-DUP	Solid	06/30/16 02:00	07/01/16 09:25
280-85171-13	SB007-16.0	Solid	06/30/16 02:35	07/01/16 09:25
280-85171-14	SB009-0.5	Solid	06/30/16 02:50	07/01/16 09:25
280-85171-15	SB008-0.5	Solid	06/30/16 03:00	07/01/16 09:25
280-85171-16	SB009-6.0	Solid	06/30/16 11:40	07/01/16 09:25
280-85171-17	SB009-10.5	Solid	06/30/16 11:45	07/01/16 09:25
280-85171-18	SB008-6.0	Solid	06/30/16 12:20	07/01/16 09:25
280-85171-19	SB008-12.0	Solid	06/30/16 12:30	07/01/16 09:25
280-85171-20	SB002-4.5	Solid	06/30/16 13:55	07/01/16 09:25
280-85171-21	SB002-12.0	Solid	06/30/16 14:05	07/01/16 09:25
280-85171-22	SB003-7.5	Solid	06/30/16 14:45	07/01/16 09:25
280-85171-23	SB003-12.0	Solid	06/30/16 14:50	07/01/16 09:25
280-85171-24	SB004-0.5	Solid	06/30/16 15:20	07/01/16 09:25
280-85171-25	FB-5	Water	06/30/16 15:40	07/01/16 09:25
280-85171-26	SB004-5.8	Solid	06/30/16 15:45	07/01/16 09:25
280-85171-27	SB004-12.0	Solid	06/30/16 15:55	07/01/16 09:25
280-85171-28	SB005-0.5	Solid	06/30/16 16:10	07/01/16 09:25
280-85171-29	SB005-6.0	Solid	06/30/16 16:40	07/01/16 09:25
280-85171-30	SB005-12.0	Solid	06/30/16 16:50	07/01/16 09:25

Client Sample ID: FB-4 — Lab Sample ID: 280-85171-1

No Detections.

Client Sample ID: SB001-0.5 — Lab Sample ID: 280-85171-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutane Sulfonate (PFBS)	0.51	J	1.13	0.20	ug/Kg	1	☼	DV-LC-0012	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.94		1.13	0.17	ug/Kg	1	☼	DV-LC-0012	Total/NA
Perfluorohexane Sulfonate (PFHxS)	17.3		1.13	0.39	ug/Kg	1	☼	DV-LC-0012	Total/NA
Perfluorononanoic acid (PFNA)	2.72		1.13	0.31	ug/Kg	1	☼	DV-LC-0012	Total/NA
Perfluorooctanoic acid (PFOA)	4.67		1.13	0.32	ug/Kg	1	☼	DV-LC-0012	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	592	D	5.64	0.99	ug/Kg	5	☼	DV-LC-0012	Total/NA

Client Sample ID: SB001-13.0 — Lab Sample ID: 280-85171-3

No Detections.

Client Sample ID: SB001-18.0 — Lab Sample ID: 280-85171-4

No Detections.

Client Sample ID: SB002-0.5 — Lab Sample ID: 280-85171-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	0.36	J	0.83	0.13	ug/Kg	1	☼	DV-LC-0012	Total/NA
Perfluorohexane Sulfonate (PFHxS)	0.91		0.83	0.29	ug/Kg	1	☼	DV-LC-0012	Total/NA
Perfluorononanoic acid (PFNA)	0.44	J	0.83	0.23	ug/Kg	1	☼	DV-LC-0012	Total/NA
Perfluorooctanesulfonic acid (PFOS)	6.40		0.83	0.15	ug/Kg	1	☼	DV-LC-0012	Total/NA
Perfluorooctanoic acid (PFOA)	0.51	J	0.83	0.24	ug/Kg	1	☼	DV-LC-0012	Total/NA

Client Sample ID: SB003-0.5 — Lab Sample ID: 280-85171-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	0.90	J	0.95	0.14	ug/Kg	1	☼	DV-LC-0012	Total/NA
Perfluorohexane Sulfonate (PFHxS)	0.99		0.95	0.33	ug/Kg	1	☼	DV-LC-0012	Total/NA
Perfluorononanoic acid (PFNA)	3.64		0.95	0.26	ug/Kg	1	☼	DV-LC-0012	Total/NA
Perfluorooctanesulfonic acid (PFOS)	99.8		0.95	0.17	ug/Kg	1	☼	DV-LC-0012	Total/NA
Perfluorooctanoic acid (PFOA)	1.21		0.95	0.27	ug/Kg	1	☼	DV-LC-0012	Total/NA

Client Sample ID: SB006-0.5 — Lab Sample ID: 280-85171-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutane Sulfonate (PFBS)	0.58	J	0.96	0.17	ug/Kg	1	☼	DV-LC-0012	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.35		0.96	0.14	ug/Kg	1	☼	DV-LC-0012	Total/NA
Perfluorohexane Sulfonate (PFHxS)	13.9		0.96	0.34	ug/Kg	1	☼	DV-LC-0012	Total/NA
Perfluorononanoic acid (PFNA)	0.64	J	0.96	0.26	ug/Kg	1	☼	DV-LC-0012	Total/NA
Perfluorooctanoic acid (PFOA)	1.38		0.96	0.28	ug/Kg	1	☼	DV-LC-0012	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	355	D	1.92	0.34	ug/Kg	2	☼	DV-LC-0012	Total/NA

Client Sample ID: SB006-8.0 — Lab Sample ID: 280-85171-8

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: SB006-16.0 — Lab Sample ID: 280-85171-9

No Detections.

Client Sample ID: SB007-0.5 — Lab Sample ID: 280-85171-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutane Sulfonate (PFBS)	0.28	J	0.89	0.16	ug/Kg	1	☼	DV-LC-0012	Total/NA
Perfluorohexane Sulfonate (PFHxS)	6.50		0.89	0.31	ug/Kg	1	☼	DV-LC-0012	Total/NA
Perfluorooctanesulfonic acid (PFOS)	94.3		0.89	0.16	ug/Kg	1	☼	DV-LC-0012	Total/NA
Perfluorooctanoic acid (PFOA)	0.29	J	0.89	0.26	ug/Kg	1	☼	DV-LC-0012	Total/NA

Client Sample ID: SB007-4.5 — Lab Sample ID: 280-85171-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexane Sulfonate (PFHxS)	3.98		0.86	0.30	ug/Kg	1	☼	DV-LC-0012	Total/NA
Perfluorooctanesulfonic acid (PFOS)	6.68		0.86	0.15	ug/Kg	1	☼	DV-LC-0012	Total/NA

Client Sample ID: SB-DUP — Lab Sample ID: 280-85171-12

No Detections.

Client Sample ID: SB007-16.0 — Lab Sample ID: 280-85171-13

No Detections.

Client Sample ID: SB009-0.5 — Lab Sample ID: 280-85171-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexane Sulfonate (PFHxS)	0.36	J	0.83	0.29	ug/Kg	1	☼	DV-LC-0012	Total/NA
Perfluorooctanesulfonic acid (PFOS)	7.04		0.83	0.15	ug/Kg	1	☼	DV-LC-0012	Total/NA

Client Sample ID: SB008-0.5 — Lab Sample ID: 280-85171-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutane Sulfonate (PFBS)	1.84		0.87	0.15	ug/Kg	1	☼	DV-LC-0012	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.03		0.87	0.13	ug/Kg	1	☼	DV-LC-0012	Total/NA
Perfluorohexane Sulfonate (PFHxS)	41.4		0.87	0.30	ug/Kg	1	☼	DV-LC-0012	Total/NA
Perfluorononanoic acid (PFNA)	5.63		0.87	0.24	ug/Kg	1	☼	DV-LC-0012	Total/NA
Perfluorooctanoic acid (PFOA)	5.68		0.87	0.25	ug/Kg	1	☼	DV-LC-0012	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	1840	D	17.4	3.04	ug/Kg	20	☼	DV-LC-0012	Total/NA

Client Sample ID: SB009-6.0 — Lab Sample ID: 280-85171-16

No Detections.

Client Sample ID: SB009-10.5 — Lab Sample ID: 280-85171-17

No Detections.

Client Sample ID: SB008-6.0 — Lab Sample ID: 280-85171-18

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: SB008-12.0 — Lab Sample ID: 280-85171-19

No Detections.

Client Sample ID: SB002-4.5 — Lab Sample ID: 280-85171-20

No Detections.

Client Sample ID: SB002-12.0 — Lab Sample ID: 280-85171-21

No Detections.

Client Sample ID: SB003-7.5 — Lab Sample ID: 280-85171-22

No Detections.

Client Sample ID: SB003-12.0 — Lab Sample ID: 280-85171-23

No Detections.

Client Sample ID: SB004-0.5 — Lab Sample ID: 280-85171-24

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexane Sulfonate (PFHxS)	1.36		0.81	0.28	ug/Kg	1	☼	DV-LC-0012	Total/NA
Perfluorooctanesulfonic acid (PFOS)	5.94		0.81	0.14	ug/Kg	1	☼	DV-LC-0012	Total/NA
Perfluorooctanoic acid (PFOA)	0.43	J	0.81	0.23	ug/Kg	1	☼	DV-LC-0012	Total/NA

Client Sample ID: FB-5 — Lab Sample ID: 280-85171-25

No Detections.

Client Sample ID: SB004-5.8 — Lab Sample ID: 280-85171-26

No Detections.

Client Sample ID: SB004-12.0 — Lab Sample ID: 280-85171-27

No Detections.

Client Sample ID: SB005-0.5 — Lab Sample ID: 280-85171-28

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	0.27	J	0.83	0.12	ug/Kg	1	☼	DV-LC-0012	Total/NA
Perfluorohexane Sulfonate (PFHxS)	3.03		0.83	0.29	ug/Kg	1	☼	DV-LC-0012	Total/NA
Perfluorooctanesulfonic acid (PFOS)	29.9		0.83	0.14	ug/Kg	1	☼	DV-LC-0012	Total/NA
Perfluorooctanoic acid (PFOA)	0.62	J	0.83	0.24	ug/Kg	1	☼	DV-LC-0012	Total/NA

Client Sample ID: SB005-6.0 — Lab Sample ID: 280-85171-29

No Detections.

Client Sample ID: SB005-12.0 — Lab Sample ID: 280-85171-30

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Project/Site: Stewart International Airport (PFAS)

TestAmerica Job ID: 280-85171-1

Method	Method Description	Protocol	Laboratory
DV-LC-0012	Perfluorinated Hydrocarbons	TAL-DEN	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

TAL-DEN = TestAmerica Laboratories, Denver, Facility Standard Operating Procedure.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Client Sample ID: FB-4

Lab Sample ID: 280-85171-1

Date Collected: 06/29/16 16:00

Matrix: Water

Date Received: 07/01/16 09:25

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.0083	U	0.020	0.0083	ug/L		07/05/16 12:12	07/07/16 20:12	1
Perfluoroheptanoic acid (PFHpA)	0.013	U	0.030	0.013	ug/L		07/05/16 12:12	07/07/16 20:12	1
Perfluorohexane Sulfonate (PFHxS)	0.0070	U	0.030	0.0070	ug/L		07/05/16 12:12	07/07/16 20:12	1
Perfluorononanoic acid (PFNA)	0.017	U	0.040	0.017	ug/L		07/05/16 12:12	07/07/16 20:12	1
Perfluorooctanesulfonic acid (PFOS)	0.013	U	0.030	0.013	ug/L		07/05/16 12:12	07/07/16 20:12	1
Perfluorooctanoic acid (PFOA)	0.0098	U	0.020	0.0098	ug/L		07/05/16 12:12	07/07/16 20:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*101*		*60 - 155*	*07/05/16 12:12*	*07/07/16 20:12*	*1*
13C8 PFOS	*103*		*45 - 130*	*07/05/16 12:12*	*07/07/16 20:12*	*1*

Client Sample ID: SB001-0.5

Lab Sample ID: 280-85171-2

Date Collected: 06/29/16 16:55

Matrix: Solid

Date Received: 07/01/16 09:25

Percent Solids: 66.8

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	**0.51**	**J**	1.13	0.20	ug/Kg	☼	07/05/16 14:35	07/07/16 14:52	1
Perfluoroheptanoic acid (PFHpA)	**1.94**		1.13	0.17	ug/Kg	☼	07/05/16 14:35	07/07/16 14:52	1
Perfluorohexane Sulfonate (PFHxS)	**17.3**		1.13	0.39	ug/Kg	☼	07/05/16 14:35	07/07/16 14:52	1
Perfluorononanoic acid (PFNA)	**2.72**		1.13	0.31	ug/Kg	☼	07/05/16 14:35	07/07/16 14:52	1
Perfluorooctanoic acid (PFOA)	**4.67**		1.13	0.32	ug/Kg	☼	07/05/16 14:35	07/07/16 14:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*111*		*57 - 153*	*07/05/16 14:35*	*07/07/16 14:52*	*1*
13C8 PFOS	*106*		*70 - 130*	*07/05/16 14:35*	*07/07/16 14:52*	*1*

Method: DV-LC-0012 - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**592**	**D**	5.64	0.99	ug/Kg	☼	07/05/16 14:35	07/08/16 13:13	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*110*	*D*	*57 - 153*	*07/05/16 14:35*	*07/08/16 13:13*	*5*
13C8 PFOS	*104*	*D*	*70 - 130*	*07/05/16 14:35*	*07/08/16 13:13*	*5*

Client Sample ID: SB001-13.0

Lab Sample ID: 280-85171-3

Date Collected: 06/29/16 17:00

Matrix: Solid

Date Received: 07/01/16 09:25

Percent Solids: 94.9

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.14	U	0.82	0.14	ug/Kg	☼	07/05/16 14:35	07/07/16 15:29	1
Perfluoroheptanoic acid (PFHpA)	0.12	U	0.82	0.12	ug/Kg	☼	07/05/16 14:35	07/07/16 15:29	1
Perfluorohexane Sulfonate (PFHxS)	0.29	U	0.82	0.29	ug/Kg	☼	07/05/16 14:35	07/07/16 15:29	1
Perfluorononanoic acid (PFNA)	0.23	U	0.82	0.23	ug/Kg	☼	07/05/16 14:35	07/07/16 15:29	1
Perfluorooctanesulfonic acid (PFOS)	0.14	U	0.82	0.14	ug/Kg	☼	07/05/16 14:35	07/07/16 15:29	1
Perfluorooctanoic acid (PFOA)	0.24	U	0.82	0.24	ug/Kg	☼	07/05/16 14:35	07/07/16 15:29	1

Client Sample ID: SB001-13.0

Lab Sample ID: 280-85171-3
Date Collected: 06/29/16 17:00
Matrix: Solid
Date Received: 07/01/16 09:25
Percent Solids: 94.9

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*105*		*57 - 153*	*07/05/16 14:35*	*07/07/16 15:29*	*1*
13C8 PFOS	*106*		*70 - 130*	*07/05/16 14:35*	*07/07/16 15:29*	*1*

Client Sample ID: SB001-18.0

Lab Sample ID: 280-85171-4
Date Collected: 06/29/16 16:57
Matrix: Solid
Date Received: 07/01/16 09:25
Percent Solids: 92.3

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.14	U	0.83	0.14	ug/Kg	☼	07/05/16 14:35	07/07/16 15:41	1
Perfluoroheptanoic acid (PFHpA)	0.12	U	0.83	0.12	ug/Kg	☼	07/05/16 14:35	07/07/16 15:41	1
Perfluorohexane Sulfonate (PFHxS)	0.29	U	0.83	0.29	ug/Kg	☼	07/05/16 14:35	07/07/16 15:41	1
Perfluorononanoic acid (PFNA)	0.23	U	0.83	0.23	ug/Kg	☼	07/05/16 14:35	07/07/16 15:41	1
Perfluorooctanesulfonic acid (PFOS)	0.14	U	0.83	0.14	ug/Kg	☼	07/05/16 14:35	07/07/16 15:41	1
Perfluorooctanoic acid (PFOA)	0.24	U	0.83	0.24	ug/Kg	☼	07/05/16 14:35	07/07/16 15:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*108*		*57 - 153*	*07/05/16 14:35*	*07/07/16 15:41*	*1*
13C8 PFOS	*102*		*70 - 130*	*07/05/16 14:35*	*07/07/16 15:41*	*1*

Client Sample ID: SB002-0.5

Lab Sample ID: 280-85171-5
Date Collected: 06/29/16 17:14
Matrix: Solid
Date Received: 07/01/16 09:25
Percent Solids: 91.2

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.15	U	0.83	0.15	ug/Kg	☼	07/05/16 14:35	07/07/16 15:53	1
Perfluoroheptanoic acid (PFHpA)	**0.36**	**J**	0.83	0.13	ug/Kg	☼	07/05/16 14:35	07/07/16 15:53	1
Perfluorohexane Sulfonate (PFHxS)	**0.91**		0.83	0.29	ug/Kg	☼	07/05/16 14:35	07/07/16 15:53	1
Perfluorononanoic acid (PFNA)	**0.44**	**J**	0.83	0.23	ug/Kg	☼	07/05/16 14:35	07/07/16 15:53	1
Perfluorooctanesulfonic acid (PFOS)	**6.40**		0.83	0.15	ug/Kg	☼	07/05/16 14:35	07/07/16 15:53	1
Perfluorooctanoic acid (PFOA)	**0.51**	**J**	0.83	0.24	ug/Kg	☼	07/05/16 14:35	07/07/16 15:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*105*		*57 - 153*	*07/05/16 14:35*	*07/07/16 15:53*	*1*
13C8 PFOS	*105*		*70 - 130*	*07/05/16 14:35*	*07/07/16 15:53*	*1*

Client Sample ID: SB003-0.5

Lab Sample ID: 280-85171-6
Date Collected: 06/29/16 17:20
Matrix: Solid
Date Received: 07/01/16 09:25
Percent Solids: 81.0

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.17	U	0.95	0.17	ug/Kg	☼	07/05/16 14:35	07/07/16 16:18	1
Perfluoroheptanoic acid (PFHpA)	**0.90**	**J**	0.95	0.14	ug/Kg	☼	07/05/16 14:35	07/07/16 16:18	1
Perfluorohexane Sulfonate (PFHxS)	**0.99**		0.95	0.33	ug/Kg	☼	07/05/16 14:35	07/07/16 16:18	1
Perfluorononanoic acid (PFNA)	**3.64**		0.95	0.26	ug/Kg	☼	07/05/16 14:35	07/07/16 16:18	1
Perfluorooctanesulfonic acid (PFOS)	**99.8**		0.95	0.17	ug/Kg	☼	07/05/16 14:35	07/07/16 16:18	1

Client Sample ID: SB003-0.5

Lab Sample ID: 280-85171-6
Date Collected: 06/29/16 17:20
Matrix: Solid
Date Received: 07/01/16 09:25
Percent Solids: 81.0

Method: DV-LC-0012 - Perfluorinated Hydrocarbons (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	1.21		0.95	0.27	ug/Kg	☼	07/05/16 14:35	07/07/16 16:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*102*		*57 - 153*	*07/05/16 14:35*	*07/07/16 16:18*	*1*
13C8 PFOS	*107*		*70 - 130*	*07/05/16 14:35*	*07/07/16 16:18*	*1*

Client Sample ID: SB006-0.5

Lab Sample ID: 280-85171-7
Date Collected: 06/30/16 00:30
Matrix: Solid
Date Received: 07/01/16 09:25
Percent Solids: 80.1

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.58	J	0.96	0.17	ug/Kg	☼	07/05/16 14:35	07/07/16 16:30	1
Perfluoroheptanoic acid (PFHpA)	1.35		0.96	0.14	ug/Kg	☼	07/05/16 14:35	07/07/16 16:30	1
Perfluorohexane Sulfonate (PFHxS)	13.9		0.96	0.34	ug/Kg	☼	07/05/16 14:35	07/07/16 16:30	1
Perfluorononanoic acid (PFNA)	0.64	J	0.96	0.26	ug/Kg	☼	07/05/16 14:35	07/07/16 16:30	1
Perfluorooctanoic acid (PFOA)	1.38		0.96	0.28	ug/Kg	☼	07/05/16 14:35	07/07/16 16:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*103*		*57 - 153*	*07/05/16 14:35*	*07/07/16 16:30*	*1*
13C8 PFOS	*102*		*70 - 130*	*07/05/16 14:35*	*07/07/16 16:30*	*1*

Method: DV-LC-0012 - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	355	D	1.92	0.34	ug/Kg	☼	07/05/16 14:35	07/08/16 13:50	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*103*	*D*	*57 - 153*	*07/05/16 14:35*	*07/08/16 13:50*	*2*
13C8 PFOS	*110*	*D*	*70 - 130*	*07/05/16 14:35*	*07/08/16 13:50*	*2*

Client Sample ID: SB006-8.0

Lab Sample ID: 280-85171-8
Date Collected: 06/30/16 01:40
Matrix: Solid
Date Received: 07/01/16 09:25
Percent Solids: 92.9

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.14	U	0.82	0.14	ug/Kg	☼	07/05/16 14:35	07/07/16 16:43	1
Perfluoroheptanoic acid (PFHpA)	0.12	U	0.82	0.12	ug/Kg	☼	07/05/16 14:35	07/07/16 16:43	1
Perfluorohexane Sulfonate (PFHxS)	0.29	U	0.82	0.29	ug/Kg	☼	07/05/16 14:35	07/07/16 16:43	1
Perfluorononanoic acid (PFNA)	0.22	U	0.82	0.22	ug/Kg	☼	07/05/16 14:35	07/07/16 16:43	1
Perfluorooctanesulfonic acid (PFOS)	0.14	U	0.82	0.14	ug/Kg	☼	07/05/16 14:35	07/07/16 16:43	1
Perfluorooctanoic acid (PFOA)	0.23	U	0.82	0.23	ug/Kg	☼	07/05/16 14:35	07/07/16 16:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*107*		*57 - 153*	*07/05/16 14:35*	*07/07/16 16:43*	*1*
13C8 PFOS	*106*		*70 - 130*	*07/05/16 14:35*	*07/07/16 16:43*	*1*

Client Sample ID: SB006-16.0

Lab Sample ID: 280-85171-9
Date Collected: 06/30/16 01:42
Matrix: Solid
Date Received: 07/01/16 09:25
Percent Solids: 92.7

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.14	U	0.82	0.14	ug/Kg	☼	07/05/16 14:35	07/07/16 16:55	1
Perfluoroheptanoic acid (PFHpA)	0.12	U	0.82	0.12	ug/Kg	☼	07/05/16 14:35	07/07/16 16:55	1
Perfluorohexane Sulfonate (PFHxS)	0.29	U	0.82	0.29	ug/Kg	☼	07/05/16 14:35	07/07/16 16:55	1
Perfluorononanoic acid (PFNA)	0.23	U	0.82	0.23	ug/Kg	☼	07/05/16 14:35	07/07/16 16:55	1
Perfluorooctanesulfonic acid (PFOS)	0.14	U	0.82	0.14	ug/Kg	☼	07/05/16 14:35	07/07/16 16:55	1
Perfluorooctanoic acid (PFOA)	0.24	U	0.82	0.24	ug/Kg	☼	07/05/16 14:35	07/07/16 16:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*104*		*57 - 153*	*07/05/16 14:35*	*07/07/16 16:55*	*1*
13C8 PFOS	*91*		*70 - 130*	*07/05/16 14:35*	*07/07/16 16:55*	*1*

Client Sample ID: SB007-0.5

Lab Sample ID: 280-85171-10
Date Collected: 06/30/16 01:45
Matrix: Solid
Date Received: 07/01/16 09:25
Percent Solids: 89.5

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	**0.28**	**J**	0.89	0.16	ug/Kg	☼	07/05/16 14:35	07/07/16 17:07	1
Perfluoroheptanoic acid (PFHpA)	0.13	U	0.89	0.13	ug/Kg	☼	07/05/16 14:35	07/07/16 17:07	1
Perfluorohexane Sulfonate (PFHxS)	**6.50**		0.89	0.31	ug/Kg	☼	07/05/16 14:35	07/07/16 17:07	1
Perfluorononanoic acid (PFNA)	0.24	U	0.89	0.24	ug/Kg	☼	07/05/16 14:35	07/07/16 17:07	1
Perfluorooctanesulfonic acid (PFOS)	**94.3**		0.89	0.16	ug/Kg	☼	07/05/16 14:35	07/07/16 17:07	1
Perfluorooctanoic acid (PFOA)	**0.29**	**J**	0.89	0.26	ug/Kg	☼	07/05/16 14:35	07/07/16 17:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*103*		*57 - 153*	*07/05/16 14:35*	*07/07/16 17:07*	*1*
13C8 PFOS	*106*		*70 - 130*	*07/05/16 14:35*	*07/07/16 17:07*	*1*

Client Sample ID: SB007-4.5

Lab Sample ID: 280-85171-11
Date Collected: 06/30/16 02:10
Matrix: Solid
Date Received: 07/01/16 09:25
Percent Solids: 88.7

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.15	U	0.86	0.15	ug/Kg	☼	07/05/16 14:35	07/07/16 17:20	1
Perfluoroheptanoic acid (PFHpA)	0.13	U	0.86	0.13	ug/Kg	☼	07/05/16 14:35	07/07/16 17:20	1
Perfluorohexane Sulfonate (PFHxS)	**3.98**		0.86	0.30	ug/Kg	☼	07/05/16 14:35	07/07/16 17:20	1
Perfluorononanoic acid (PFNA)	0.24	U	0.86	0.24	ug/Kg	☼	07/05/16 14:35	07/07/16 17:20	1
Perfluorooctanesulfonic acid (PFOS)	**6.68**		0.86	0.15	ug/Kg	☼	07/05/16 14:35	07/07/16 17:20	1
Perfluorooctanoic acid (PFOA)	0.25	U	0.86	0.25	ug/Kg	☼	07/05/16 14:35	07/07/16 17:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*107*		*57 - 153*	*07/05/16 14:35*	*07/07/16 17:20*	*1*
13C8 PFOS	*106*		*70 - 130*	*07/05/16 14:35*	*07/07/16 17:20*	*1*

Client Sample ID: SB-DUP

Lab Sample ID: 280-85171-12
Date Collected: 06/30/16 02:00
Matrix: Solid
Date Received: 07/01/16 09:25
Percent Solids: 91.3

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.15	U	0.86	0.15	ug/Kg	☼	07/05/16 14:35	07/07/16 17:32	1
Perfluoroheptanoic acid (PFHpA)	0.13	U	0.86	0.13	ug/Kg	☼	07/05/16 14:35	07/07/16 17:32	1
Perfluorohexane Sulfonate (PFHxS)	0.30	U	0.86	0.30	ug/Kg	☼	07/05/16 14:35	07/07/16 17:32	1
Perfluorononanoic acid (PFNA)	0.24	U	0.86	0.24	ug/Kg	☼	07/05/16 14:35	07/07/16 17:32	1
Perfluorooctanesulfonic acid (PFOS)	0.15	U	0.86	0.15	ug/Kg	☼	07/05/16 14:35	07/07/16 17:32	1
Perfluorooctanoic acid (PFOA)	0.25	U	0.86	0.25	ug/Kg	☼	07/05/16 14:35	07/07/16 17:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*103*		*57 - 153*	*07/05/16 14:35*	*07/07/16 17:32*	*1*
13C8 PFOS	*105*		*70 - 130*	*07/05/16 14:35*	*07/07/16 17:32*	*1*

Client Sample ID: SB007-16.0

Lab Sample ID: 280-85171-13
Date Collected: 06/30/16 02:35
Matrix: Solid
Date Received: 07/01/16 09:25
Percent Solids: 91.3

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.15	U	0.85	0.15	ug/Kg	☼	07/05/16 14:35	07/07/16 17:44	1
Perfluoroheptanoic acid (PFHpA)	0.13	U	0.85	0.13	ug/Kg	☼	07/05/16 14:35	07/07/16 17:44	1
Perfluorohexane Sulfonate (PFHxS)	0.30	U	0.85	0.30	ug/Kg	☼	07/05/16 14:35	07/07/16 17:44	1
Perfluorononanoic acid (PFNA)	0.23	U	0.85	0.23	ug/Kg	☼	07/05/16 14:35	07/07/16 17:44	1
Perfluorooctanesulfonic acid (PFOS)	0.15	U	0.85	0.15	ug/Kg	☼	07/05/16 14:35	07/07/16 17:44	1
Perfluorooctanoic acid (PFOA)	0.24	U	0.85	0.24	ug/Kg	☼	07/05/16 14:35	07/07/16 17:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*105*		*57 - 153*	*07/05/16 14:35*	*07/07/16 17:44*	*1*
13C8 PFOS	*101*		*70 - 130*	*07/05/16 14:35*	*07/07/16 17:44*	*1*

Client Sample ID: SB009-0.5

Lab Sample ID: 280-85171-14
Date Collected: 06/30/16 02:50
Matrix: Solid
Date Received: 07/01/16 09:25
Percent Solids: 90.4

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.15	U	0.83	0.15	ug/Kg	☼	07/05/16 14:35	07/07/16 17:56	1
Perfluoroheptanoic acid (PFHpA)	0.12	U	0.83	0.12	ug/Kg	☼	07/05/16 14:35	07/07/16 17:56	1
Perfluorohexane Sulfonate (PFHxS)	**0.36**	**J**	0.83	0.29	ug/Kg	☼	07/05/16 14:35	07/07/16 17:56	1
Perfluorononanoic acid (PFNA)	0.23	U	0.83	0.23	ug/Kg	☼	07/05/16 14:35	07/07/16 17:56	1
Perfluorooctanesulfonic acid (PFOS)	**7.04**		0.83	0.15	ug/Kg	☼	07/05/16 14:35	07/07/16 17:56	1
Perfluorooctanoic acid (PFOA)	0.24	U	0.83	0.24	ug/Kg	☼	07/05/16 14:35	07/07/16 17:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*105*		*57 - 153*	*07/05/16 14:35*	*07/07/16 17:56*	*1*
13C8 PFOS	*103*		*70 - 130*	*07/05/16 14:35*	*07/07/16 17:56*	*1*

Client Sample ID: SB008-0.5

Date Collected: 06/30/16 03:00
Date Received: 07/01/16 09:25

Lab Sample ID: 280-85171-15

Matrix: Solid
Percent Solids: 85.3

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	1.84		0.87	0.15	ug/Kg	☼	07/05/16 14:35	07/07/16 18:09	1
Perfluoroheptanoic acid (PFHpA)	3.03		0.87	0.13	ug/Kg	☼	07/05/16 14:35	07/07/16 18:09	1
Perfluorohexane Sulfonate (PFHxS)	41.4		0.87	0.30	ug/Kg	☼	07/05/16 14:35	07/07/16 18:09	1
Perfluorononanoic acid (PFNA)	5.63		0.87	0.24	ug/Kg	☼	07/05/16 14:35	07/07/16 18:09	1
Perfluorooctanoic acid (PFOA)	5.68		0.87	0.25	ug/Kg	☼	07/05/16 14:35	07/07/16 18:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*107*		*57 - 153*	*07/05/16 14:35*	*07/07/16 18:09*	*1*
13C8 PFOS	*111*		*70 - 130*	*07/05/16 14:35*	*07/07/16 18:09*	*1*

Method: DV-LC-0012 - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	1840	D	17.4	3.04	ug/Kg	☼	07/05/16 14:35	07/08/16 14:02	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*100*	*D*	*57 - 153*	*07/05/16 14:35*	*07/08/16 14:02*	*20*
13C8 PFOS	*95*	*D*	*70 - 130*	*07/05/16 14:35*	*07/08/16 14:02*	*20*

Client Sample ID: SB009-6.0

Date Collected: 06/30/16 11:40
Date Received: 07/01/16 09:25

Lab Sample ID: 280-85171-16

Matrix: Solid
Percent Solids: 87.0

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.15	U	0.88	0.15	ug/Kg	☼	07/05/16 14:35	07/08/16 14:51	1
Perfluoroheptanoic acid (PFHpA)	0.13	U	0.88	0.13	ug/Kg	☼	07/05/16 14:35	07/08/16 14:51	1
Perfluorohexane Sulfonate (PFHxS)	0.31	U	0.88	0.31	ug/Kg	☼	07/05/16 14:35	07/08/16 14:51	1
Perfluorononanoic acid (PFNA)	0.24	U	0.88	0.24	ug/Kg	☼	07/05/16 14:35	07/08/16 14:51	1
Perfluorooctanesulfonic acid (PFOS)	0.15	U	0.88	0.15	ug/Kg	☼	07/05/16 14:35	07/08/16 14:51	1
Perfluorooctanoic acid (PFOA)	0.25	U	0.88	0.25	ug/Kg	☼	07/05/16 14:35	07/08/16 14:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*106*		*57 - 153*	*07/05/16 14:35*	*07/08/16 14:51*	*1*
13C8 PFOS	*100*		*70 - 130*	*07/05/16 14:35*	*07/08/16 14:51*	*1*

Client Sample ID: SB009-10.5

Date Collected: 06/30/16 11:45
Date Received: 07/01/16 09:25

Lab Sample ID: 280-85171-17

Matrix: Solid
Percent Solids: 88.1

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.15	U	0.83	0.15	ug/Kg	☼	07/05/16 14:35	07/08/16 15:04	1
Perfluoroheptanoic acid (PFHpA)	0.12	U	0.83	0.12	ug/Kg	☼	07/05/16 14:35	07/08/16 15:04	1
Perfluorohexane Sulfonate (PFHxS)	0.29	U	0.83	0.29	ug/Kg	☼	07/05/16 14:35	07/08/16 15:04	1
Perfluorononanoic acid (PFNA)	0.23	U	0.83	0.23	ug/Kg	☼	07/05/16 14:35	07/08/16 15:04	1
Perfluorooctanesulfonic acid (PFOS)	0.15	U	0.83	0.15	ug/Kg	☼	07/05/16 14:35	07/08/16 15:04	1
Perfluorooctanoic acid (PFOA)	0.24	U	0.83	0.24	ug/Kg	☼	07/05/16 14:35	07/08/16 15:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*105*		*57 - 153*	*07/05/16 14:35*	*07/08/16 15:04*	*1*

Client Sample ID: SB009-10.5

Lab Sample ID: 280-85171-17
Date Collected: 06/30/16 11:45
Matrix: Solid
Date Received: 07/01/16 09:25
Percent Solids: 88.1

Method: DV-LC-0012 - Perfluorinated Hydrocarbons (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOS	*103*		*70 - 130*	*07/05/16 14:35*	*07/08/16 15:04*	*1*

Client Sample ID: SB008-6.0

Lab Sample ID: 280-85171-18
Date Collected: 06/30/16 12:20
Matrix: Solid
Date Received: 07/01/16 09:25
Percent Solids: 90.7

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.15	U	0.88	0.15	ug/Kg	☼	07/05/16 14:35	07/08/16 15:16	1
Perfluoroheptanoic acid (PFHpA)	0.13	U	0.88	0.13	ug/Kg	☼	07/05/16 14:35	07/08/16 15:16	1
Perfluorohexane Sulfonate (PFHxS)	0.31	U	0.88	0.31	ug/Kg	☼	07/05/16 14:35	07/08/16 15:16	1
Perfluorononanoic acid (PFNA)	0.24	U	0.88	0.24	ug/Kg	☼	07/05/16 14:35	07/08/16 15:16	1
Perfluorooctanesulfonic acid (PFOS)	0.15	U	0.88	0.15	ug/Kg	☼	07/05/16 14:35	07/08/16 15:16	1
Perfluorooctanoic acid (PFOA)	0.25	U	0.88	0.25	ug/Kg	☼	07/05/16 14:35	07/08/16 15:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*103*		*57 - 153*	*07/05/16 14:35*	*07/08/16 15:16*	*1*
13C8 PFOS	*99*		*70 - 130*	*07/05/16 14:35*	*07/08/16 15:16*	*1*

Client Sample ID: SB008-12.0

Lab Sample ID: 280-85171-19
Date Collected: 06/30/16 12:30
Matrix: Solid
Date Received: 07/01/16 09:25
Percent Solids: 91.0

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.15	U	0.85	0.15	ug/Kg	☼	07/05/16 14:35	07/08/16 15:28	1
Perfluoroheptanoic acid (PFHpA)	0.13	U	0.85	0.13	ug/Kg	☼	07/05/16 14:35	07/08/16 15:28	1
Perfluorohexane Sulfonate (PFHxS)	0.30	U	0.85	0.30	ug/Kg	☼	07/05/16 14:35	07/08/16 15:28	1
Perfluorononanoic acid (PFNA)	0.23	U	0.85	0.23	ug/Kg	☼	07/05/16 14:35	07/08/16 15:28	1
Perfluorooctanesulfonic acid (PFOS)	0.15	U	0.85	0.15	ug/Kg	☼	07/05/16 14:35	07/08/16 15:28	1
Perfluorooctanoic acid (PFOA)	0.24	U	0.85	0.24	ug/Kg	☼	07/05/16 14:35	07/08/16 15:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*108*		*57 - 153*	*07/05/16 14:35*	*07/08/16 15:28*	*1*
13C8 PFOS	*112*		*70 - 130*	*07/05/16 14:35*	*07/08/16 15:28*	*1*

Client Sample ID: SB002-4.5

Lab Sample ID: 280-85171-20
Date Collected: 06/30/16 13:55
Matrix: Solid
Date Received: 07/01/16 09:25
Percent Solids: 94.1

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.14	U	0.80	0.14	ug/Kg	☼	07/05/16 14:35	07/08/16 15:41	1
Perfluoroheptanoic acid (PFHpA)	0.12	U	0.80	0.12	ug/Kg	☼	07/05/16 14:35	07/08/16 15:41	1
Perfluorohexane Sulfonate (PFHxS)	0.28	U	0.80	0.28	ug/Kg	☼	07/05/16 14:35	07/08/16 15:41	1
Perfluorononanoic acid (PFNA)	0.22	U	0.80	0.22	ug/Kg	☼	07/05/16 14:35	07/08/16 15:41	1
Perfluorooctanesulfonic acid (PFOS)	0.14	U	0.80	0.14	ug/Kg	☼	07/05/16 14:35	07/08/16 15:41	1
Perfluorooctanoic acid (PFOA)	0.23	U	0.80	0.23	ug/Kg	☼	07/05/16 14:35	07/08/16 15:41	1

Client Sample ID: SB002-4.5

Lab Sample ID: 280-85171-20
Date Collected: 06/30/16 13:55
Matrix: Solid
Date Received: 07/01/16 09:25
Percent Solids: 94.1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*106*		*57 - 153*	*07/05/16 14:35*	*07/08/16 15:41*	*1*
13C8 PFOS	*108*		*70 - 130*	*07/05/16 14:35*	*07/08/16 15:41*	*1*

Client Sample ID: SB002-12.0

Lab Sample ID: 280-85171-21
Date Collected: 06/30/16 14:05
Matrix: Solid
Date Received: 07/01/16 09:25
Percent Solids: 92.9

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.14	U	0.78	0.14	ug/Kg	☼	07/05/16 14:35	07/08/16 15:53	1
Perfluoroheptanoic acid (PFHpA)	0.12	U	0.78	0.12	ug/Kg	☼	07/05/16 14:35	07/08/16 15:53	1
Perfluorohexane Sulfonate (PFHxS)	0.27	U	0.78	0.27	ug/Kg	☼	07/05/16 14:35	07/08/16 15:53	1
Perfluorononanoic acid (PFNA)	0.22	U	0.78	0.22	ug/Kg	☼	07/05/16 14:35	07/08/16 15:53	1
Perfluorooctanesulfonic acid (PFOS)	0.14	U	0.78	0.14	ug/Kg	☼	07/05/16 14:35	07/08/16 15:53	1
Perfluorooctanoic acid (PFOA)	0.23	U	0.78	0.23	ug/Kg	☼	07/05/16 14:35	07/08/16 15:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*111*		*57 - 153*	*07/05/16 14:35*	*07/08/16 15:53*	*1*
13C8 PFOS	*97*		*70 - 130*	*07/05/16 14:35*	*07/08/16 15:53*	*1*

Client Sample ID: SB003-7.5

Lab Sample ID: 280-85171-22
Date Collected: 06/30/16 14:45
Matrix: Solid
Date Received: 07/01/16 09:25
Percent Solids: 92.4

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.14	U	0.81	0.14	ug/Kg	☼	07/05/16 14:35	07/08/16 16:05	1
Perfluoroheptanoic acid (PFHpA)	0.12	U	0.81	0.12	ug/Kg	☼	07/05/16 14:35	07/08/16 16:05	1
Perfluorohexane Sulfonate (PFHxS)	0.28	U	0.81	0.28	ug/Kg	☼	07/05/16 14:35	07/08/16 16:05	1
Perfluorononanoic acid (PFNA)	0.22	U	0.81	0.22	ug/Kg	☼	07/05/16 14:35	07/08/16 16:05	1
Perfluorooctanesulfonic acid (PFOS)	0.14	U	0.81	0.14	ug/Kg	☼	07/05/16 14:35	07/08/16 16:05	1
Perfluorooctanoic acid (PFOA)	0.23	U	0.81	0.23	ug/Kg	☼	07/05/16 14:35	07/08/16 16:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*105*		*57 - 153*	*07/05/16 14:35*	*07/08/16 16:05*	*1*
13C8 PFOS	*101*		*70 - 130*	*07/05/16 14:35*	*07/08/16 16:05*	*1*

Client Sample ID: SB003-12.0

Lab Sample ID: 280-85171-23
Date Collected: 06/30/16 14:50
Matrix: Solid
Date Received: 07/01/16 09:25
Percent Solids: 92.1

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.15	U	0.86	0.15	ug/Kg	☼	07/05/16 14:35	07/08/16 16:18	1
Perfluoroheptanoic acid (PFHpA)	0.13	U	0.86	0.13	ug/Kg	☼	07/05/16 14:35	07/08/16 16:18	1
Perfluorohexane Sulfonate (PFHxS)	0.30	U	0.86	0.30	ug/Kg	☼	07/05/16 14:35	07/08/16 16:18	1
Perfluorononanoic acid (PFNA)	0.24	U	0.86	0.24	ug/Kg	☼	07/05/16 14:35	07/08/16 16:18	1
Perfluorooctanesulfonic acid (PFOS)	0.15	U	0.86	0.15	ug/Kg	☼	07/05/16 14:35	07/08/16 16:18	1
Perfluorooctanoic acid (PFOA)	0.25	U	0.86	0.25	ug/Kg	☼	07/05/16 14:35	07/08/16 16:18	1

Client Sample ID: SB003-12.0

Date Collected: 06/30/16 14:50
Date Received: 07/01/16 09:25

Lab Sample ID: 280-85171-23

Matrix: Solid
Percent Solids: 92.1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*107*		*57 - 153*	*07/05/16 14:35*	*07/08/16 16:18*	*1*
13C8 PFOS	*101*		*70 - 130*	*07/05/16 14:35*	*07/08/16 16:18*	*1*

Client Sample ID: SB004-0.5

Date Collected: 06/30/16 15:20
Date Received: 07/01/16 09:25

Lab Sample ID: 280-85171-24

Matrix: Solid
Percent Solids: 92.9

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.14	U	0.81	0.14	ug/Kg	☼	07/05/16 14:35	07/08/16 17:07	1
Perfluoroheptanoic acid (PFHpA)	0.12	U	0.81	0.12	ug/Kg	☼	07/05/16 14:35	07/08/16 17:07	1
Perfluorohexane Sulfonate (PFHxS)	**1.36**		0.81	0.28	ug/Kg	☼	07/05/16 14:35	07/08/16 17:07	1
Perfluorononanoic acid (PFNA)	0.22	U	0.81	0.22	ug/Kg	☼	07/05/16 14:35	07/08/16 17:07	1
Perfluorooctanesulfonic acid (PFOS)	**5.94**		0.81	0.14	ug/Kg	☼	07/05/16 14:35	07/08/16 17:07	1
Perfluorooctanoic acid (PFOA)	**0.43**	**J**	0.81	0.23	ug/Kg	☼	07/05/16 14:35	07/08/16 17:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*104*		*57 - 153*	*07/05/16 14:35*	*07/08/16 17:07*	*1*
13C8 PFOS	*104*		*70 - 130*	*07/05/16 14:35*	*07/08/16 17:07*	*1*

Client Sample ID: FB-5

Date Collected: 06/30/16 15:40
Date Received: 07/01/16 09:25

Lab Sample ID: 280-85171-25

Matrix: Water

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.0077	U	0.019	0.0077	ug/L		07/05/16 12:12	07/07/16 20:24	1
Perfluoroheptanoic acid (PFHpA)	0.012	U	0.028	0.012	ug/L		07/05/16 12:12	07/07/16 20:24	1
Perfluorohexane Sulfonate (PFHxS)	0.0065	U	0.028	0.0065	ug/L		07/05/16 12:12	07/07/16 20:24	1
Perfluorononanoic acid (PFNA)	0.016	U	0.038	0.016	ug/L		07/05/16 12:12	07/07/16 20:24	1
Perfluorooctanesulfonic acid (PFOS)	0.012	U	0.028	0.012	ug/L		07/05/16 12:12	07/07/16 20:24	1
Perfluorooctanoic acid (PFOA)	0.0092	U	0.019	0.0092	ug/L		07/05/16 12:12	07/07/16 20:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*98*		*60 - 155*	*07/05/16 12:12*	*07/07/16 20:24*	*1*
13C8 PFOS	*102*		*45 - 130*	*07/05/16 12:12*	*07/07/16 20:24*	*1*

Client Sample ID: SB004-5.8

Date Collected: 06/30/16 15:45
Date Received: 07/01/16 09:25

Lab Sample ID: 280-85171-26

Matrix: Solid
Percent Solids: 91.0

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.15	U	0.84	0.15	ug/Kg	☼	07/05/16 14:35	07/08/16 17:19	1
Perfluoroheptanoic acid (PFHpA)	0.13	U	0.84	0.13	ug/Kg	☼	07/05/16 14:35	07/08/16 17:19	1
Perfluorohexane Sulfonate (PFHxS)	0.30	U	0.84	0.30	ug/Kg	☼	07/05/16 14:35	07/08/16 17:19	1
Perfluorononanoic acid (PFNA)	0.23	U	0.84	0.23	ug/Kg	☼	07/05/16 14:35	07/08/16 17:19	1
Perfluorooctanesulfonic acid (PFOS)	0.15	U	0.84	0.15	ug/Kg	☼	07/05/16 14:35	07/08/16 17:19	1
Perfluorooctanoic acid (PFOA)	0.24	U	0.84	0.24	ug/Kg	☼	07/05/16 14:35	07/08/16 17:19	1

Client Sample ID: SB004-5.8

Lab Sample ID: 280-85171-26
Date Collected: 06/30/16 15:45
Matrix: Solid
Date Received: 07/01/16 09:25
Percent Solids: 91.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*108*		*57 - 153*	*07/05/16 14:35*	*07/08/16 17:19*	*1*
13C8 PFOS	*104*		*70 - 130*	*07/05/16 14:35*	*07/08/16 17:19*	*1*

Client Sample ID: SB004-12.0

Lab Sample ID: 280-85171-27
Date Collected: 06/30/16 15:55
Matrix: Solid
Date Received: 07/01/16 09:25
Percent Solids: 91.1

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.14	U	0.82	0.14	ug/Kg	☼	07/05/16 14:35	07/08/16 17:31	1
Perfluoroheptanoic acid (PFHpA)	0.12	U	0.82	0.12	ug/Kg	☼	07/05/16 14:35	07/08/16 17:31	1
Perfluorohexane Sulfonate (PFHxS)	0.29	U	0.82	0.29	ug/Kg	☼	07/05/16 14:35	07/08/16 17:31	1
Perfluorononanoic acid (PFNA)	0.22	U	0.82	0.22	ug/Kg	☼	07/05/16 14:35	07/08/16 17:31	1
Perfluorooctanesulfonic acid (PFOS)	0.14	U	0.82	0.14	ug/Kg	☼	07/05/16 14:35	07/08/16 17:31	1
Perfluorooctanoic acid (PFOA)	0.24	U	0.82	0.24	ug/Kg	☼	07/05/16 14:35	07/08/16 17:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*108*		*57 - 153*	*07/05/16 14:35*	*07/08/16 17:31*	*1*
13C8 PFOS	*106*		*70 - 130*	*07/05/16 14:35*	*07/08/16 17:31*	*1*

Client Sample ID: SB005-0.5

Lab Sample ID: 280-85171-28
Date Collected: 06/30/16 16:10
Matrix: Solid
Date Received: 07/01/16 09:25
Percent Solids: 94.5

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.14	U	0.83	0.14	ug/Kg	☼	07/05/16 14:35	07/08/16 17:44	1
Perfluoroheptanoic acid (PFHpA)	**0.27**	**J**	0.83	0.12	ug/Kg	☼	07/05/16 14:35	07/08/16 17:44	1
Perfluorohexane Sulfonate (PFHxS)	**3.03**		0.83	0.29	ug/Kg	☼	07/05/16 14:35	07/08/16 17:44	1
Perfluorononanoic acid (PFNA)	0.23	U	0.83	0.23	ug/Kg	☼	07/05/16 14:35	07/08/16 17:44	1
Perfluorooctanesulfonic acid (PFOS)	**29.9**		0.83	0.14	ug/Kg	☼	07/05/16 14:35	07/08/16 17:44	1
Perfluorooctanoic acid (PFOA)	**0.62**	**J**	0.83	0.24	ug/Kg	☼	07/05/16 14:35	07/08/16 17:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*108*		*57 - 153*	*07/05/16 14:35*	*07/08/16 17:44*	*1*
13C8 PFOS	*101*		*70 - 130*	*07/05/16 14:35*	*07/08/16 17:44*	*1*

Client Sample ID: SB005-6.0

Lab Sample ID: 280-85171-29
Date Collected: 06/30/16 16:40
Matrix: Solid
Date Received: 07/01/16 09:25
Percent Solids: 93.0

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.14	U	0.81	0.14	ug/Kg	☼	07/05/16 14:35	07/08/16 17:56	1
Perfluoroheptanoic acid (PFHpA)	0.12	U	0.81	0.12	ug/Kg	☼	07/05/16 14:35	07/08/16 17:56	1
Perfluorohexane Sulfonate (PFHxS)	0.28	U	0.81	0.28	ug/Kg	☼	07/05/16 14:35	07/08/16 17:56	1
Perfluorononanoic acid (PFNA)	0.22	U	0.81	0.22	ug/Kg	☼	07/05/16 14:35	07/08/16 17:56	1
Perfluorooctanesulfonic acid (PFOS)	0.14	U	0.81	0.14	ug/Kg	☼	07/05/16 14:35	07/08/16 17:56	1
Perfluorooctanoic acid (PFOA)	0.23	U	0.81	0.23	ug/Kg	☼	07/05/16 14:35	07/08/16 17:56	1

Client Sample ID: SB005-6.0
Lab Sample ID: 280-85171-29

Date Collected: 06/30/16 16:40
Matrix: Solid
Date Received: 07/01/16 09:25
Percent Solids: 93.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*105*		*57 - 153*	*07/05/16 14:35*	*07/08/16 17:56*	*1*
13C8 PFOS	*98*		*70 - 130*	*07/05/16 14:35*	*07/08/16 17:56*	*1*

Client Sample ID: SB005-12.0
Lab Sample ID: 280-85171-30

Date Collected: 06/30/16 16:50
Matrix: Solid
Date Received: 07/01/16 09:25
Percent Solids: 90.4

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.15	U	0.86	0.15	ug/Kg	☼	07/05/16 14:35	07/08/16 18:08	1
Perfluoroheptanoic acid (PFHpA)	0.13	U	0.86	0.13	ug/Kg	☼	07/05/16 14:35	07/08/16 18:08	1
Perfluorohexane Sulfonate (PFHxS)	0.30	U	0.86	0.30	ug/Kg	☼	07/05/16 14:35	07/08/16 18:08	1
Perfluorononanoic acid (PFNA)	0.24	U	0.86	0.24	ug/Kg	☼	07/05/16 14:35	07/08/16 18:08	1
Perfluorooctanesulfonic acid (PFOS)	0.15	U	0.86	0.15	ug/Kg	☼	07/05/16 14:35	07/08/16 18:08	1
Perfluorooctanoic acid (PFOA)	0.25	U	0.86	0.25	ug/Kg	☼	07/05/16 14:35	07/08/16 18:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*108*		*57 - 153*	*07/05/16 14:35*	*07/08/16 18:08*	*1*
13C8 PFOS	*100*		*70 - 130*	*07/05/16 14:35*	*07/08/16 18:08*	*1*

Surrogate Summary

Client: HDR Inc
Project/Site: Stewart International Airport (PFAS)

TestAmerica Job ID: 280-85171-1

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	3C8 PFO/ (57-153)	3C8 PFOS (70-130)
280-85171-2	SB001-0.5	111	106
280-85171-2 - DL	SB001-0.5	110 D	104 D
280-85171-2 MS	SB001-0.5	102	99
280-85171-2 MS - DL	SB001-0.5	103 D	106 D
280-85171-2 MSD	SB001-0.5	107	101
280-85171-2 MSD - DL	SB001-0.5	103 D	93 D
280-85171-3	SB001-13.0	105	106
280-85171-4	SB001-18.0	108	102
280-85171-5	SB002-0.5	105	105
280-85171-6	SB003-0.5	102	107
280-85171-7	SB006-0.5	103	102
280-85171-7 - DL	SB006-0.5	103 D	110 D
280-85171-8	SB006-8.0	107	106
280-85171-9	SB006-16.0	104	91
280-85171-10	SB007-0.5	103	106
280-85171-11	SB007-4.5	107	106
280-85171-12	SB-DUP	103	105
280-85171-13	SB007-16.0	105	101
280-85171-14	SB009-0.5	105	103
280-85171-15	SB008-0.5	107	111
280-85171-15 - DL	SB008-0.5	100 D	95 D
280-85171-16	SB009-6.0	106	100
280-85171-17	SB009-10.5	105	103
280-85171-18	SB008-6.0	103	99
280-85171-19	SB008-12.0	108	112
280-85171-20	SB002-4.5	106	108
280-85171-21	SB002-12.0	111	97
280-85171-22	SB003-7.5	105	101
280-85171-23	SB003-12.0	107	101
280-85171-23 MS	SB003-12.0	106	108
280-85171-23 MSD	SB003-12.0	107	111
280-85171-24	SB004-0.5	104	104
280-85171-26	SB004-5.8	108	104
280-85171-27	SB004-12.0	108	106
280-85171-28	SB005-0.5	108	101
280-85171-29	SB005-6.0	105	98
280-85171-30	SB005-12.0	108	100
LCS 280-332389/2-A	Lab Control Sample	108	106
LCS 280-332390/2-A	Lab Control Sample	105	107
MB 280-332389/1-A	Method Blank	105	105
MB 280-332390/1-A	Method Blank	108	101

Surrogate Legend

13C8 PFOA = 13C8 PFOA
13C8 PFOS = 13C8 PFOS

Surrogate Summary

Client: HDR Inc
Project/Site: Stewart International Airport (PFAS)

TestAmerica Job ID: 280-85171-1

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	3C8 PFOA (60-155)	3C8 PFOS (45-130)								
280-85171-1	FB-4	101	103								
280-85171-25	FB-5	98	102								
280-85194-A-1-A MS	Matrix Spike	111	149 X								
280-85194-G-1-A MSD	Matrix Spike Duplicate	100	116								
DLCK 280-328740/14	Lab Control Sample	105	106								
LCS 280-332379/2-A	Lab Control Sample	100	97								
MB 280-332379/1-A	Method Blank	100	101								

Surrogate Legend

13C8 PFOA = 13C8 PFOA
13C8 PFOS = 13C8 PFOS

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Lab Sample ID: DLCK 280-328740/14
Matrix: Water
Analysis Batch: 328740

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	DLCK Result	DLCK Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutane Sulfonate (PFBS)	0.443	0.419		ug/L		95	70 - 130
Perfluoroheptanoic acid (PFHpA)	0.500	0.433		ug/L		87	70 - 130
Perfluorohexane Sulfonate (PFHxS)	0.473	0.446		ug/L		94	70 - 130
Perfluorononanoic acid (PFNA)	0.500	0.439		ug/L		88	70 - 130
Perfluorooctanesulfonic acid (PFOS)	0.478	0.456		ug/L		95	70 - 130
Perfluorooctanoic acid (PFOA)	0.500	0.459		ug/L		92	70 - 130

Surrogate	*DLCK %Recovery*	*DLCK Qualifier*	*Limits*
13C8 PFOA	*105*		*60 - 155*
13C8 PFOS	*106*		*45 - 130*

Lab Sample ID: MB 280-332379/1-A
Matrix: Water
Analysis Batch: 332793

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 332379

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.0082	U	0.020	0.0082	ug/L		07/05/16 12:12	07/07/16 18:33	1
Perfluoroheptanoic acid (PFHpA)	0.013	U	0.030	0.013	ug/L		07/05/16 12:12	07/07/16 18:33	1
Perfluorohexane Sulfonate (PFHxS)	0.0070	U	0.030	0.0070	ug/L		07/05/16 12:12	07/07/16 18:33	1
Perfluorononanoic acid (PFNA)	0.017	U	0.040	0.017	ug/L		07/05/16 12:12	07/07/16 18:33	1
Perfluorooctanesulfonic acid (PFOS)	0.013	U	0.030	0.013	ug/L		07/05/16 12:12	07/07/16 18:33	1
Perfluorooctanoic acid (PFOA)	0.0098	U	0.020	0.0098	ug/L		07/05/16 12:12	07/07/16 18:33	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*100*		*60 - 155*	*07/05/16 12:12*	*07/07/16 18:33*	*1*
13C8 PFOS	*101*		*45 - 130*	*07/05/16 12:12*	*07/07/16 18:33*	*1*

Lab Sample ID: LCS 280-332379/2-A
Matrix: Water
Analysis Batch: 332793

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 332379

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutane Sulfonate (PFBS)	0.177	0.141		ug/L		80	70 - 134
Perfluoroheptanoic acid (PFHpA)	0.200	0.191		ug/L		95	70 - 135
Perfluorohexane Sulfonate (PFHxS)	0.189	0.170		ug/L		90	70 - 132
Perfluorononanoic acid (PFNA)	0.200	0.172		ug/L		86	69 - 143
Perfluorooctanesulfonic acid (PFOS)	0.191	0.155		ug/L		81	70 - 130
Perfluorooctanoic acid (PFOA)	0.200	0.187		ug/L		93	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 PFOA	*100*		*60 - 155*
13C8 PFOS	*97*		*45 - 130*

Method: DV-LC-0012 - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: 280-85194-A-1-A MS
Matrix: Water
Analysis Batch: 332793

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 332379

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutane Sulfonate (PFBS)	0.44	F1	0.156	0.438	F1	ug/L		0.3	70 - 134
Perfluoroheptanoic acid (PFHpA)	0.50	F1	0.176	0.617	F1	ug/L		64	70 - 135
Perfluorohexane Sulfonate (PFHxS)	1.16		0.166	1.345	4	ug/L		113	70 - 132
Perfluorononanoic acid (PFNA)	0.078		0.176	0.240		ug/L		92	69 - 143
Perfluorooctanesulfonic acid (PFOS)	1.31		0.168	1.499	4	ug/L		111	70 - 130
Perfluorooctanoic acid (PFOA)	1.26		0.176	1.441	4	ug/L		105	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
13C8 PFOA	*111*		*60 - 155*
13C8 PFOS	*149*	*X*	*45 - 130*

Lab Sample ID: 280-85194-G-1-A MSD
Matrix: Water
Analysis Batch: 332793

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 332379

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutane Sulfonate (PFBS)	0.44	F1	0.160	0.387	F1	ug/L		-31	70 - 134	12	30
Perfluoroheptanoic acid (PFHpA)	0.50	F1	0.181	0.579	F1	ug/L		42	70 - 135	6	30
Perfluorohexane Sulfonate (PFHxS)	1.16		0.171	1.246	4	ug/L		52	70 - 132	8	30
Perfluorononanoic acid (PFNA)	0.078		0.181	0.231		ug/L		85	69 - 143	4	30
Perfluorooctanesulfonic acid (PFOS)	1.31		0.173	1.460	4	ug/L		86	70 - 130	3	30
Perfluorooctanoic acid (PFOA)	1.26		0.181	1.375	4	ug/L		65	70 - 130	5	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
13C8 PFOA	*100*		*60 - 155*
13C8 PFOS	*116*		*45 - 130*

Lab Sample ID: MB 280-332389/1-A
Matrix: Solid
Analysis Batch: 332793

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 332389

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.14	U	0.80	0.14	ug/Kg		07/05/16 14:35	07/07/16 14:03	1
Perfluoroheptanoic acid (PFHpA)	0.12	U	0.80	0.12	ug/Kg		07/05/16 14:35	07/07/16 14:03	1
Perfluorohexane Sulfonate (PFHxS)	0.28	U	0.80	0.28	ug/Kg		07/05/16 14:35	07/07/16 14:03	1
Perfluorononanoic acid (PFNA)	0.22	U	0.80	0.22	ug/Kg		07/05/16 14:35	07/07/16 14:03	1
Perfluorooctanesulfonic acid (PFOS)	0.14	U	0.80	0.14	ug/Kg		07/05/16 14:35	07/07/16 14:03	1
Perfluorooctanoic acid (PFOA)	0.23	U	0.80	0.23	ug/Kg		07/05/16 14:35	07/07/16 14:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*105*		*57 - 153*	*07/05/16 14:35*	*07/07/16 14:03*	*1*
13C8 PFOS	*105*		*70 - 130*	*07/05/16 14:35*	*07/07/16 14:03*	*1*

Method: DV-LC-0012 - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: LCS 280-332389/2-A
Matrix: Solid
Analysis Batch: 332793

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 332389

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutane Sulfonate (PFBS)	16.1	13.65		ug/Kg		85	68 - 130
Perfluoroheptanoic acid (PFHpA)	18.2	18.86		ug/Kg		104	70 - 130
Perfluorohexane Sulfonate (PFHxS)	17.2	16.86		ug/Kg		98	70 - 135
Perfluorononanoic acid (PFNA)	18.2	17.00		ug/Kg		93	64 - 138
Perfluorooctanesulfonic acid (PFOS)	17.4	15.80		ug/Kg		91	70 - 130
Perfluorooctanoic acid (PFOA)	18.2	18.39		ug/Kg		101	70 - 131

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 PFOA	*108*		*57 - 153*
13C8 PFOS	*106*		*70 - 130*

Lab Sample ID: 280-85171-2 MS
Matrix: Solid
Analysis Batch: 332793

Client Sample ID: SB001-0.5
Prep Type: Total/NA
Prep Batch: 332389

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutane Sulfonate (PFBS)	0.51	J	22.0	19.24		ug/Kg	☼	85	68 - 130
Perfluoroheptanoic acid (PFHpA)	1.94		24.8	27.59		ug/Kg	☼	103	70 - 130
Perfluorohexane Sulfonate (PFHxS)	17.3		23.5	41.52		ug/Kg	☼	103	70 - 135
Perfluorononanoic acid (PFNA)	2.72		24.8	25.23		ug/Kg	☼	91	64 - 138
Perfluorooctanoic acid (PFOA)	4.67		24.8	29.18		ug/Kg	☼	99	70 - 131

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
13C8 PFOA	*102*		*57 - 153*
13C8 PFOS	*99*		*70 - 130*

Lab Sample ID: 280-85171-2 MSD
Matrix: Solid
Analysis Batch: 332793

Client Sample ID: SB001-0.5
Prep Type: Total/NA
Prep Batch: 332389

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutane Sulfonate (PFBS)	0.51	J	23.7	21.42		ug/Kg	☼	88	68 - 130	11	30
Perfluoroheptanoic acid (PFHpA)	1.94		26.8	29.18		ug/Kg	☼	102	70 - 130	6	30
Perfluorohexane Sulfonate (PFHxS)	17.3		25.3	41.08		ug/Kg	☼	94	70 - 135	1	30
Perfluorononanoic acid (PFNA)	2.72		26.8	26.15		ug/Kg	☼	88	64 - 138	4	30
Perfluorooctanoic acid (PFOA)	4.67		26.8	30.59		ug/Kg	☼	97	70 - 131	5	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
13C8 PFOA	*107*		*57 - 153*
13C8 PFOS	*101*		*70 - 130*

Method: DV-LC-0012 - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: MB 280-332390/1-A
Matrix: Solid
Analysis Batch: 333083

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 332390

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.14	U	0.80	0.14	ug/Kg		07/05/16 14:35	07/08/16 14:27	1
Perfluoroheptanoic acid (PFHpA)	0.12	U	0.80	0.12	ug/Kg		07/05/16 14:35	07/08/16 14:27	1
Perfluorohexane Sulfonate (PFHxS)	0.28	U	0.80	0.28	ug/Kg		07/05/16 14:35	07/08/16 14:27	1
Perfluorononanoic acid (PFNA)	0.22	U	0.80	0.22	ug/Kg		07/05/16 14:35	07/08/16 14:27	1
Perfluorooctanesulfonic acid (PFOS)	0.14	U	0.80	0.14	ug/Kg		07/05/16 14:35	07/08/16 14:27	1
Perfluorooctanoic acid (PFOA)	0.23	U	0.80	0.23	ug/Kg		07/05/16 14:35	07/08/16 14:27	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*108*		*57 - 153*	*07/05/16 14:35*	*07/08/16 14:27*	*1*
13C8 PFOS	*101*		*70 - 130*	*07/05/16 14:35*	*07/08/16 14:27*	*1*

Lab Sample ID: LCS 280-332390/2-A
Matrix: Solid
Analysis Batch: 333083

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 332390

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutane Sulfonate (PFBS)	16.1	13.58		ug/Kg		84	68 - 130
Perfluoroheptanoic acid (PFHpA)	18.2	17.37		ug/Kg		95	70 - 130
Perfluorohexane Sulfonate (PFHxS)	17.2	16.24		ug/Kg		94	70 - 135
Perfluorononanoic acid (PFNA)	18.2	16.37		ug/Kg		90	64 - 138
Perfluorooctanesulfonic acid (PFOS)	17.4	16.71		ug/Kg		96	70 - 130
Perfluorooctanoic acid (PFOA)	18.2	18.19		ug/Kg		100	70 - 131

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 PFOA	*105*		*57 - 153*
13C8 PFOS	*107*		*70 - 130*

Lab Sample ID: 280-85171-23 MS
Matrix: Solid
Analysis Batch: 333083

Client Sample ID: SB003-12.0
Prep Type: Total/NA
Prep Batch: 332390

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutane Sulfonate (PFBS)	0.15	U	16.8	15.31		ug/Kg	☼	91	68 - 130
Perfluoroheptanoic acid (PFHpA)	0.13	U	19.0	19.62		ug/Kg	☼	103	70 - 130
Perfluorohexane Sulfonate (PFHxS)	0.30	U	18.0	17.83		ug/Kg	☼	99	70 - 135
Perfluorononanoic acid (PFNA)	0.24	U	19.0	17.81		ug/Kg	☼	94	64 - 138
Perfluorooctanesulfonic acid (PFOS)	0.15	U	18.1	17.70		ug/Kg	☼	98	70 - 130
Perfluorooctanoic acid (PFOA)	0.25	U	19.0	18.81		ug/Kg	☼	99	70 - 131

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
13C8 PFOA	*106*		*57 - 153*
13C8 PFOS	*108*		*70 - 130*

Method: DV-LC-0012 - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: 280-85171-23 MSD
Matrix: Solid
Analysis Batch: 333083

Client Sample ID: SB003-12.0
Prep Type: Total/NA
Prep Batch: 332390

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutane Sulfonate (PFBS)	0.15	U	17.3	14.39		ug/Kg	☼	83	68 - 130	6	30
Perfluoroheptanoic acid (PFHpA)	0.13	U	19.5	19.56		ug/Kg	☼	100	70 - 130	0	30
Perfluorohexane Sulfonate (PFHxS)	0.30	U	18.5	17.80		ug/Kg	☼	96	70 - 135	0	30
Perfluorononanoic acid (PFNA)	0.24	U	19.5	17.61		ug/Kg	☼	90	64 - 138	1	30
Perfluorooctanesulfonic acid (PFOS)	0.15	U	18.7	19.27		ug/Kg	☼	103	70 - 130	8	30
Perfluorooctanoic acid (PFOA)	0.25	U	19.5	19.37		ug/Kg	☼	99	70 - 131	3	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
13C8 PFOA	*107*		*57 - 153*
13C8 PFOS	*111*		*70 - 130*

Method: DV-LC-0012 - Perfluorinated Hydrocarbons - DL

Lab Sample ID: 280-85171-2 MS
Matrix: Solid
Analysis Batch: 333083

Client Sample ID: SB001-0.5
Prep Type: Total/NA
Prep Batch: 332389

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanesulfonic acid (PFOS) - DL	592	D	23.7	639.7	4 D	ug/Kg	☼	200	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
13C8 PFOA - DL	*103*	*D*	*57 - 153*
13C8 PFOS - DL	*106*	*D*	*70 - 130*

Lab Sample ID: 280-85171-2 MSD
Matrix: Solid
Analysis Batch: 333083

Client Sample ID: SB001-0.5
Prep Type: Total/NA
Prep Batch: 332389

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanesulfonic acid (PFOS) - DL	592	D	25.6	519.5	4 D	ug/Kg	☼	-284	70 - 130	21	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
13C8 PFOA - DL	*103*	*D*	*57 - 153*
13C8 PFOS - DL	*93*	*D*	*70 - 130*

Qualifiers

LCMS

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
X	Surrogate is outside control limits
F1	MS and/or MSD Recovery is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

LCMS

Analysis Batch: 328740

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
DLCK 280-328740/14	Lab Control Sample	Total/NA	Water	DV-LC-0012	

Prep Batch: 332379

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-85171-1	FB-4	Total/NA	Water	3535	
280-85171-25	FB-5	Total/NA	Water	3535	
280-85194-A-1-A MS	Matrix Spike	Total/NA	Water	3535	
280-85194-G-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	3535	
LCS 280-332379/2-A	Lab Control Sample	Total/NA	Water	3535	
MB 280-332379/1-A	Method Blank	Total/NA	Water	3535	

Prep Batch: 332389

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-85171-2 - DL	SB001-0.5	Total/NA	Solid	PFC leach	
280-85171-2	SB001-0.5	Total/NA	Solid	PFC leach	
280-85171-2 MS	SB001-0.5	Total/NA	Solid	PFC leach	
280-85171-2 MS - DL	SB001-0.5	Total/NA	Solid	PFC leach	
280-85171-2 MSD	SB001-0.5	Total/NA	Solid	PFC leach	
280-85171-2 MSD - DL	SB001-0.5	Total/NA	Solid	PFC leach	
280-85171-3	SB001-13.0	Total/NA	Solid	PFC leach	
280-85171-4	SB001-18.0	Total/NA	Solid	PFC leach	
280-85171-5	SB002-0.5	Total/NA	Solid	PFC leach	
280-85171-6	SB003-0.5	Total/NA	Solid	PFC leach	
280-85171-7	SB006-0.5	Total/NA	Solid	PFC leach	
280-85171-7 - DL	SB006-0.5	Total/NA	Solid	PFC leach	
280-85171-8	SB006-8.0	Total/NA	Solid	PFC leach	
280-85171-9	SB006-16.0	Total/NA	Solid	PFC leach	
280-85171-10	SB007-0.5	Total/NA	Solid	PFC leach	
280-85171-11	SB007-4.5	Total/NA	Solid	PFC leach	
280-85171-12	SB-DUP	Total/NA	Solid	PFC leach	
280-85171-13	SB007-16.0	Total/NA	Solid	PFC leach	
280-85171-14	SB009-0.5	Total/NA	Solid	PFC leach	
280-85171-15	SB008-0.5	Total/NA	Solid	PFC leach	
280-85171-15 - DL	SB008-0.5	Total/NA	Solid	PFC leach	
LCS 280-332389/2-A	Lab Control Sample	Total/NA	Solid	PFC leach	
MB 280-332389/1-A	Method Blank	Total/NA	Solid	PFC leach	

Prep Batch: 332390

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-85171-16	SB009-6.0	Total/NA	Solid	PFC leach	
280-85171-17	SB009-10.5	Total/NA	Solid	PFC leach	
280-85171-18	SB008-6.0	Total/NA	Solid	PFC leach	
280-85171-19	SB008-12.0	Total/NA	Solid	PFC leach	
280-85171-20	SB002-4.5	Total/NA	Solid	PFC leach	
280-85171-21	SB002-12.0	Total/NA	Solid	PFC leach	
280-85171-22	SB003-7.5	Total/NA	Solid	PFC leach	
280-85171-23	SB003-12.0	Total/NA	Solid	PFC leach	
280-85171-23 MS	SB003-12.0	Total/NA	Solid	PFC leach	
280-85171-23 MSD	SB003-12.0	Total/NA	Solid	PFC leach	
280-85171-24	SB004-0.5	Total/NA	Solid	PFC leach	
280-85171-26	SB004-5.8	Total/NA	Solid	PFC leach	

LCMS (Continued)

Prep Batch: 332390 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-85171-27	SB004-12.0	Total/NA	Solid	PFC leach	
280-85171-28	SB005-0.5	Total/NA	Solid	PFC leach	
280-85171-29	SB005-6.0	Total/NA	Solid	PFC leach	
280-85171-30	SB005-12.0	Total/NA	Solid	PFC leach	
LCS 280-332390/2-A	Lab Control Sample	Total/NA	Solid	PFC leach	
MB 280-332390/1-A	Method Blank	Total/NA	Solid	PFC leach	

Analysis Batch: 332793

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-85171-1	FB-4	Total/NA	Water	DV-LC-0012	332379
280-85171-2	SB001-0.5	Total/NA	Solid	DV-LC-0012	332389
280-85171-2 MS	SB001-0.5	Total/NA	Solid	DV-LC-0012	332389
280-85171-2 MSD	SB001-0.5	Total/NA	Solid	DV-LC-0012	332389
280-85171-3	SB001-13.0	Total/NA	Solid	DV-LC-0012	332389
280-85171-4	SB001-18.0	Total/NA	Solid	DV-LC-0012	332389
280-85171-5	SB002-0.5	Total/NA	Solid	DV-LC-0012	332389
280-85171-6	SB003-0.5	Total/NA	Solid	DV-LC-0012	332389
280-85171-7	SB006-0.5	Total/NA	Solid	DV-LC-0012	332389
280-85171-8	SB006-8.0	Total/NA	Solid	DV-LC-0012	332389
280-85171-9	SB006-16.0	Total/NA	Solid	DV-LC-0012	332389
280-85171-10	SB007-0.5	Total/NA	Solid	DV-LC-0012	332389
280-85171-11	SB007-4.5	Total/NA	Solid	DV-LC-0012	332389
280-85171-12	SB-DUP	Total/NA	Solid	DV-LC-0012	332389
280-85171-13	SB007-16.0	Total/NA	Solid	DV-LC-0012	332389
280-85171-14	SB009-0.5	Total/NA	Solid	DV-LC-0012	332389
280-85171-15	SB008-0.5	Total/NA	Solid	DV-LC-0012	332389
280-85171-25	FB-5	Total/NA	Water	DV-LC-0012	332379
280-85194-A-1-A MS	Matrix Spike	Total/NA	Water	DV-LC-0012	332379
280-85194-G-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	DV-LC-0012	332379
LCS 280-332379/2-A	Lab Control Sample	Total/NA	Water	DV-LC-0012	332379
LCS 280-332389/2-A	Lab Control Sample	Total/NA	Solid	DV-LC-0012	332389
MB 280-332379/1-A	Method Blank	Total/NA	Water	DV-LC-0012	332379
MB 280-332389/1-A	Method Blank	Total/NA	Solid	DV-LC-0012	332389

Analysis Batch: 333083

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-85171-2 - DL	SB001-0.5	Total/NA	Solid	DV-LC-0012	332389
280-85171-2 MS - DL	SB001-0.5	Total/NA	Solid	DV-LC-0012	332389
280-85171-2 MSD - DL	SB001-0.5	Total/NA	Solid	DV-LC-0012	332389
280-85171-7 - DL	SB006-0.5	Total/NA	Solid	DV-LC-0012	332389
280-85171-15 - DL	SB008-0.5	Total/NA	Solid	DV-LC-0012	332389
280-85171-16	SB009-6.0	Total/NA	Solid	DV-LC-0012	332390
280-85171-17	SB009-10.5	Total/NA	Solid	DV-LC-0012	332390
280-85171-18	SB008-6.0	Total/NA	Solid	DV-LC-0012	332390
280-85171-19	SB008-12.0	Total/NA	Solid	DV-LC-0012	332390
280-85171-20	SB002-4.5	Total/NA	Solid	DV-LC-0012	332390
280-85171-21	SB002-12.0	Total/NA	Solid	DV-LC-0012	332390
280-85171-22	SB003-7.5	Total/NA	Solid	DV-LC-0012	332390
280-85171-23	SB003-12.0	Total/NA	Solid	DV-LC-0012	332390
280-85171-23 MS	SB003-12.0	Total/NA	Solid	DV-LC-0012	332390
280-85171-23 MSD	SB003-12.0	Total/NA	Solid	DV-LC-0012	332390

LCMS (Continued)

Analysis Batch: 333083 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-85171-24	SB004-0.5	Total/NA	Solid	DV-LC-0012	332390
280-85171-26	SB004-5.8	Total/NA	Solid	DV-LC-0012	332390
280-85171-27	SB004-12.0	Total/NA	Solid	DV-LC-0012	332390
280-85171-28	SB005-0.5	Total/NA	Solid	DV-LC-0012	332390
280-85171-29	SB005-6.0	Total/NA	Solid	DV-LC-0012	332390
280-85171-30	SB005-12.0	Total/NA	Solid	DV-LC-0012	332390
LCS 280-332390/2-A	Lab Control Sample	Total/NA	Solid	DV-LC-0012	332390
MB 280-332390/1-A	Method Blank	Total/NA	Solid	DV-LC-0012	332390

General Chemistry

Analysis Batch: 332707

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-85171-2	SB001-0.5	Total/NA	Solid	Moisture	
280-85171-3	SB001-13.0	Total/NA	Solid	Moisture	
280-85171-4	SB001-18.0	Total/NA	Solid	Moisture	
280-85171-5	SB002-0.5	Total/NA	Solid	Moisture	
280-85171-6	SB003-0.5	Total/NA	Solid	Moisture	
280-85171-7	SB006-0.5	Total/NA	Solid	Moisture	
280-85171-8	SB006-8.0	Total/NA	Solid	Moisture	
280-85171-9	SB006-16.0	Total/NA	Solid	Moisture	
280-85171-10	SB007-0.5	Total/NA	Solid	Moisture	
280-85171-11	SB007-4.5	Total/NA	Solid	Moisture	
280-85171-12	SB-DUP	Total/NA	Solid	Moisture	
280-85171-13	SB007-16.0	Total/NA	Solid	Moisture	
280-85171-13 DU	SB007-16.0	Total/NA	Solid	Moisture	
280-85171-14	SB009-0.5	Total/NA	Solid	Moisture	
280-85171-15	SB008-0.5	Total/NA	Solid	Moisture	
280-85171-16	SB009-6.0	Total/NA	Solid	Moisture	
280-85171-17	SB009-10.5	Total/NA	Solid	Moisture	
280-85171-18	SB008-6.0	Total/NA	Solid	Moisture	
280-85171-19	SB008-12.0	Total/NA	Solid	Moisture	
280-85171-20	SB002-4.5	Total/NA	Solid	Moisture	
280-85171-21	SB002-12.0	Total/NA	Solid	Moisture	
280-85171-22	SB003-7.5	Total/NA	Solid	Moisture	
280-85171-23	SB003-12.0	Total/NA	Solid	Moisture	
280-85171-24	SB004-0.5	Total/NA	Solid	Moisture	
280-85171-26	SB004-5.8	Total/NA	Solid	Moisture	
280-85171-27	SB004-12.0	Total/NA	Solid	Moisture	
280-85171-28	SB005-0.5	Total/NA	Solid	Moisture	
280-85171-29	SB005-6.0	Total/NA	Solid	Moisture	
280-85171-30	SB005-12.0	Total/NA	Solid	Moisture	

Client Sample ID: FB-4
Date Collected: 06/29/16 16:00
Date Received: 07/01/16 09:25

Lab Sample ID: 280-85171-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			248.6 mL	5 mL	332379	07/05/16 12:12	JRK	TAL DEN
Total/NA	Analysis	DV-LC-0012		1	248.6 mL	5 mL	332793	07/07/16 20:12	HKF	TAL DEN

Client Sample ID: SB001-0.5
Date Collected: 06/29/16 16:55
Date Received: 07/01/16 09:25

Lab Sample ID: 280-85171-2
Matrix: Solid
Percent Solids: 66.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PFC leach			10.61 g	20 mL	332389	07/05/16 14:35	GLK	TAL DEN
Total/NA	Analysis	DV-LC-0012		1	10.61 g	20 mL	332793	07/07/16 14:52	HKF	TAL DEN
Total/NA	Prep	PFC leach	DL		10.61 g	20 mL	332389	07/05/16 14:35	GLK	TAL DEN
Total/NA	Analysis	DV-LC-0012	DL	5	10.61 g	20 mL	333083	07/08/16 13:13	HKF	TAL DEN
Total/NA	Analysis	Moisture		1			332707	07/07/16 06:50	IEU	TAL DEN

Client Sample ID: SB001-13.0
Date Collected: 06/29/16 17:00
Date Received: 07/01/16 09:25

Lab Sample ID: 280-85171-3
Matrix: Solid
Percent Solids: 94.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PFC leach			10.25 g	20 mL	332389	07/05/16 14:35	GLK	TAL DEN
Total/NA	Analysis	DV-LC-0012		1	10.25 g	20 mL	332793	07/07/16 15:29	HKF	TAL DEN
Total/NA	Analysis	Moisture		1			332707	07/07/16 06:50	IEU	TAL DEN

Client Sample ID: SB001-18.0
Date Collected: 06/29/16 16:57
Date Received: 07/01/16 09:25

Lab Sample ID: 280-85171-4
Matrix: Solid
Percent Solids: 92.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PFC leach			10.49 g	20 mL	332389	07/05/16 14:35	GLK	TAL DEN
Total/NA	Analysis	DV-LC-0012		1	10.49 g	20 mL	332793	07/07/16 15:41	HKF	TAL DEN
Total/NA	Analysis	Moisture		1			332707	07/07/16 06:50	IEU	TAL DEN

Client Sample ID: SB002-0.5
Date Collected: 06/29/16 17:14
Date Received: 07/01/16 09:25

Lab Sample ID: 280-85171-5
Matrix: Solid
Percent Solids: 91.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PFC leach			10.51 g	20 mL	332389	07/05/16 14:35	GLK	TAL DEN
Total/NA	Analysis	DV-LC-0012		1	10.51 g	20 mL	332793	07/07/16 15:53	HKF	TAL DEN
Total/NA	Analysis	Moisture		1			332707	07/07/16 06:50	IEU	TAL DEN

Client Sample ID: SB003-0.5
Date Collected: 06/29/16 17:20
Date Received: 07/01/16 09:25

Lab Sample ID: 280-85171-6
Matrix: Solid
Percent Solids: 81.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PFC leach			10.43 g	20 mL	332389	07/05/16 14:35	GLK	TAL DEN
Total/NA	Analysis	DV-LC-0012		1	10.43 g	20 mL	332793	07/07/16 16:18	HKF	TAL DEN
Total/NA	Analysis	Moisture		1			332707	07/07/16 06:50	IEU	TAL DEN

Client Sample ID: SB006-0.5
Date Collected: 06/30/16 00:30
Date Received: 07/01/16 09:25

Lab Sample ID: 280-85171-7
Matrix: Solid
Percent Solids: 80.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PFC leach			10.42 g	20 mL	332389	07/05/16 14:35	GLK	TAL DEN
Total/NA	Analysis	DV-LC-0012		1	10.42 g	20 mL	332793	07/07/16 16:30	HKF	TAL DEN
Total/NA	Prep	PFC leach	DL		10.42 g	20 mL	332389	07/05/16 14:35	GLK	TAL DEN
Total/NA	Analysis	DV-LC-0012	DL	2	10.42 g	20 mL	333083	07/08/16 13:50	HKF	TAL DEN
Total/NA	Analysis	Moisture		1			332707	07/07/16 06:50	IEU	TAL DEN

Client Sample ID: SB006-8.0
Date Collected: 06/30/16 01:40
Date Received: 07/01/16 09:25

Lab Sample ID: 280-85171-8
Matrix: Solid
Percent Solids: 92.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PFC leach			10.54 g	20 mL	332389	07/05/16 14:35	GLK	TAL DEN
Total/NA	Analysis	DV-LC-0012		1	10.54 g	20 mL	332793	07/07/16 16:43	HKF	TAL DEN
Total/NA	Analysis	Moisture		1			332707	07/07/16 06:50	IEU	TAL DEN

Client Sample ID: SB006-16.0
Date Collected: 06/30/16 01:42
Date Received: 07/01/16 09:25

Lab Sample ID: 280-85171-9
Matrix: Solid
Percent Solids: 92.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PFC leach			10.50 g	20 mL	332389	07/05/16 14:35	GLK	TAL DEN
Total/NA	Analysis	DV-LC-0012		1	10.50 g	20 mL	332793	07/07/16 16:55	HKF	TAL DEN
Total/NA	Analysis	Moisture		1			332707	07/07/16 06:50	IEU	TAL DEN

Client Sample ID: SB007-0.5
Date Collected: 06/30/16 01:45
Date Received: 07/01/16 09:25

Lab Sample ID: 280-85171-10
Matrix: Solid
Percent Solids: 89.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PFC leach			10.04 g	20 mL	332389	07/05/16 14:35	GLK	TAL DEN
Total/NA	Analysis	DV-LC-0012		1	10.04 g	20 mL	332793	07/07/16 17:07	HKF	TAL DEN
Total/NA	Analysis	Moisture		1			332707	07/07/16 06:50	IEU	TAL DEN

Client Sample ID: SB007-4.5

Lab Sample ID: 280-85171-11
Date Collected: 06/30/16 02:10
Matrix: Solid
Date Received: 07/01/16 09:25
Percent Solids: 88.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PFC leach			10.47 g	20 mL	332389	07/05/16 14:35	GLK	TAL DEN
Total/NA	Analysis	DV-LC-0012		1	10.47 g	20 mL	332793	07/07/16 17:20	HKF	TAL DEN
Total/NA	Analysis	Moisture		1			332707	07/07/16 06:50	IEU	TAL DEN

Client Sample ID: SB-DUP

Lab Sample ID: 280-85171-12
Date Collected: 06/30/16 02:00
Matrix: Solid
Date Received: 07/01/16 09:25
Percent Solids: 91.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PFC leach			10.18 g	20 mL	332389	07/05/16 14:35	GLK	TAL DEN
Total/NA	Analysis	DV-LC-0012		1	10.18 g	20 mL	332793	07/07/16 17:32	HKF	TAL DEN
Total/NA	Analysis	Moisture		1			332707	07/07/16 06:50	IEU	TAL DEN

Client Sample ID: SB007-16.0

Lab Sample ID: 280-85171-13
Date Collected: 06/30/16 02:35
Matrix: Solid
Date Received: 07/01/16 09:25
Percent Solids: 91.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PFC leach			10.33 g	20 mL	332389	07/05/16 14:35	GLK	TAL DEN
Total/NA	Analysis	DV-LC-0012		1	10.33 g	20 mL	332793	07/07/16 17:44	HKF	TAL DEN
Total/NA	Analysis	Moisture		1			332707	07/07/16 06:50	IEU	TAL DEN

Client Sample ID: SB009-0.5

Lab Sample ID: 280-85171-14
Date Collected: 06/30/16 02:50
Matrix: Solid
Date Received: 07/01/16 09:25
Percent Solids: 90.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PFC leach			10.63 g	20 mL	332389	07/05/16 14:35	GLK	TAL DEN
Total/NA	Analysis	DV-LC-0012		1	10.63 g	20 mL	332793	07/07/16 17:56	HKF	TAL DEN
Total/NA	Analysis	Moisture		1			332707	07/07/16 06:50	IEU	TAL DEN

Client Sample ID: SB008-0.5

Lab Sample ID: 280-85171-15
Date Collected: 06/30/16 03:00
Matrix: Solid
Date Received: 07/01/16 09:25
Percent Solids: 85.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PFC leach			10.80 g	20 mL	332389	07/05/16 14:35	GLK	TAL DEN
Total/NA	Analysis	DV-LC-0012		1	10.80 g	20 mL	332793	07/07/16 18:09	HKF	TAL DEN
Total/NA	Prep	PFC leach	DL		10.80 g	20 mL	332389	07/05/16 14:35	GLK	TAL DEN
Total/NA	Analysis	DV-LC-0012	DL	20	10.80 g	20 mL	333083	07/08/16 14:02	HKF	TAL DEN
Total/NA	Analysis	Moisture		1			332707	07/07/16 06:50	IEU	TAL DEN

Client Sample ID: SB009-6.0
Date Collected: 06/30/16 11:40
Date Received: 07/01/16 09:25

Lab Sample ID: 280-85171-16
Matrix: Solid
Percent Solids: 87.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PFC leach			10.40 g	20 mL	332390	07/05/16 14:35	GLK	TAL DEN
Total/NA	Analysis	DV-LC-0012		1	10.40 g	20 mL	333083	07/08/16 14:51	HKF	TAL DEN
Total/NA	Analysis	Moisture		1			332707	07/07/16 06:50	IEU	TAL DEN

Client Sample ID: SB009-10.5
Date Collected: 06/30/16 11:45
Date Received: 07/01/16 09:25

Lab Sample ID: 280-85171-17
Matrix: Solid
Percent Solids: 88.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PFC leach			10.91 g	20 mL	332390	07/05/16 14:35	GLK	TAL DEN
Total/NA	Analysis	DV-LC-0012		1	10.91 g	20 mL	333083	07/08/16 15:04	HKF	TAL DEN
Total/NA	Analysis	Moisture		1			332707	07/07/16 06:50	IEU	TAL DEN

Client Sample ID: SB008-6.0
Date Collected: 06/30/16 12:20
Date Received: 07/01/16 09:25

Lab Sample ID: 280-85171-18
Matrix: Solid
Percent Solids: 90.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PFC leach			10.06 g	20 mL	332390	07/05/16 14:35	GLK	TAL DEN
Total/NA	Analysis	DV-LC-0012		1	10.06 g	20 mL	333083	07/08/16 15:16	HKF	TAL DEN
Total/NA	Analysis	Moisture		1			332707	07/07/16 06:50	IEU	TAL DEN

Client Sample ID: SB008-12.0
Date Collected: 06/30/16 12:30
Date Received: 07/01/16 09:25

Lab Sample ID: 280-85171-19
Matrix: Solid
Percent Solids: 91.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PFC leach			10.37 g	20 mL	332390	07/05/16 14:35	GLK	TAL DEN
Total/NA	Analysis	DV-LC-0012		1	10.37 g	20 mL	333083	07/08/16 15:28	HKF	TAL DEN
Total/NA	Analysis	Moisture		1			332707	07/07/16 06:50	IEU	TAL DEN

Client Sample ID: SB002-4.5
Date Collected: 06/30/16 13:55
Date Received: 07/01/16 09:25

Lab Sample ID: 280-85171-20
Matrix: Solid
Percent Solids: 94.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PFC leach			10.67 g	20 mL	332390	07/05/16 14:35	GLK	TAL DEN
Total/NA	Analysis	DV-LC-0012		1	10.67 g	20 mL	333083	07/08/16 15:41	HKF	TAL DEN
Total/NA	Analysis	Moisture		1			332707	07/07/16 06:50	IEU	TAL DEN

Client Sample ID: SB002-12.0
Date Collected: 06/30/16 14:05
Date Received: 07/01/16 09:25

Lab Sample ID: 280-85171-21
Matrix: Solid
Percent Solids: 92.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PFC leach			10.99 g	20 mL	332390	07/05/16 14:35	GLK	TAL DEN
Total/NA	Analysis	DV-LC-0012		1	10.99 g	20 mL	333083	07/08/16 15:53	HKF	TAL DEN
Total/NA	Analysis	Moisture		1			332707	07/07/16 06:50	IEU	TAL DEN

Client Sample ID: SB003-7.5
Date Collected: 06/30/16 14:45
Date Received: 07/01/16 09:25

Lab Sample ID: 280-85171-22
Matrix: Solid
Percent Solids: 92.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PFC leach			10.69 g	20 mL	332390	07/05/16 14:35	GLK	TAL DEN
Total/NA	Analysis	DV-LC-0012		1	10.69 g	20 mL	333083	07/08/16 16:05	HKF	TAL DEN
Total/NA	Analysis	Moisture		1			332707	07/07/16 06:50	IEU	TAL DEN

Client Sample ID: SB003-12.0
Date Collected: 06/30/16 14:50
Date Received: 07/01/16 09:25

Lab Sample ID: 280-85171-23
Matrix: Solid
Percent Solids: 92.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PFC leach			10.13 g	20 mL	332390	07/05/16 14:35	GLK	TAL DEN
Total/NA	Analysis	DV-LC-0012		1	10.13 g	20 mL	333083	07/08/16 16:18	HKF	TAL DEN
Total/NA	Analysis	Moisture		1			332707	07/07/16 06:50	IEU	TAL DEN

Client Sample ID: SB004-0.5
Date Collected: 06/30/16 15:20
Date Received: 07/01/16 09:25

Lab Sample ID: 280-85171-24
Matrix: Solid
Percent Solids: 92.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PFC leach			10.64 g	20 mL	332390	07/05/16 14:35	GLK	TAL DEN
Total/NA	Analysis	DV-LC-0012		1	10.64 g	20 mL	333083	07/08/16 17:07	HKF	TAL DEN
Total/NA	Analysis	Moisture		1			332707	07/07/16 06:50	IEU	TAL DEN

Client Sample ID: FB-5
Date Collected: 06/30/16 15:40
Date Received: 07/01/16 09:25

Lab Sample ID: 280-85171-25
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			266.5 mL	5 mL	332379	07/05/16 12:12	JRK	TAL DEN
Total/NA	Analysis	DV-LC-0012		1	266.5 mL	5 mL	332793	07/07/16 20:24	HKF	TAL DEN

Client Sample ID: SB004-5.8
Date Collected: 06/30/16 15:45
Date Received: 07/01/16 09:25

Lab Sample ID: 280-85171-26
Matrix: Solid
Percent Solids: 91.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PFC leach			10.41 g	20 mL	332390	07/05/16 14:35	GLK	TAL DEN
Total/NA	Analysis	DV-LC-0012		1	10.41 g	20 mL	333083	07/08/16 17:19	HKF	TAL DEN
Total/NA	Analysis	Moisture		1			332707	07/07/16 06:50	IEU	TAL DEN

Client Sample ID: SB004-12.0
Date Collected: 06/30/16 15:55
Date Received: 07/01/16 09:25

Lab Sample ID: 280-85171-27
Matrix: Solid
Percent Solids: 91.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PFC leach			10.73 g	20 mL	332390	07/05/16 14:35	GLK	TAL DEN
Total/NA	Analysis	DV-LC-0012		1	10.73 g	20 mL	333083	07/08/16 17:31	HKF	TAL DEN
Total/NA	Analysis	Moisture		1			332707	07/07/16 06:50	IEU	TAL DEN

Client Sample ID: SB005-0.5
Date Collected: 06/30/16 16:10
Date Received: 07/01/16 09:25

Lab Sample ID: 280-85171-28
Matrix: Solid
Percent Solids: 94.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PFC leach			10.23 g	20 mL	332390	07/05/16 14:35	GLK	TAL DEN
Total/NA	Analysis	DV-LC-0012		1	10.23 g	20 mL	333083	07/08/16 17:44	HKF	TAL DEN
Total/NA	Analysis	Moisture		1			332707	07/07/16 06:50	IEU	TAL DEN

Client Sample ID: SB005-6.0
Date Collected: 06/30/16 16:40
Date Received: 07/01/16 09:25

Lab Sample ID: 280-85171-29
Matrix: Solid
Percent Solids: 93.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PFC leach			10.61 g	20 mL	332390	07/05/16 14:35	GLK	TAL DEN
Total/NA	Analysis	DV-LC-0012		1	10.61 g	20 mL	333083	07/08/16 17:56	HKF	TAL DEN
Total/NA	Analysis	Moisture		1			332707	07/07/16 06:50	IEU	TAL DEN

Client Sample ID: SB005-12.0
Date Collected: 06/30/16 16:50
Date Received: 07/01/16 09:25

Lab Sample ID: 280-85171-30
Matrix: Solid
Percent Solids: 90.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PFC leach			10.28 g	20 mL	332390	07/05/16 14:35	GLK	TAL DEN
Total/NA	Analysis	DV-LC-0012		1	10.28 g	20 mL	333083	07/08/16 18:08	HKF	TAL DEN
Total/NA	Analysis	Moisture		1			332707	07/07/16 06:50	IEU	TAL DEN

Laboratory References:
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Certification Summary

Client: HDR Inc
Project/Site: Stewart International Airport (PFAS)

TestAmerica Job ID: 280-85171-1

Laboratory: TestAmerica Denver

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-17
A2LA	ISO/IEC 17025		2907.01	10-31-17
Alabama	State Program	4	40730	09-30-12 *
Alaska (UST)	State Program	10	UST-30	04-05-17
Arizona	State Program	9	AZ0713	12-19-16
Arkansas DEQ	State Program	6	88-0687	06-01-17
California	State Program	9	2513	08-31-16
Connecticut	State Program	1	PH-0686	09-30-16
Florida	NELAP	4	E87667	06-30-16 *
Georgia	State Program	4	N/A	01-09-17
Illinois	NELAP	5	200017	04-30-17
Iowa	State Program	7	370	11-30-16
Kansas	NELAP	7	E-10166	07-31-16
Louisiana	NELAP	6	02096	06-30-16 *
Maine	State Program	1	CO0002	03-03-17
Minnesota	NELAP	5	8-999-405	12-31-16
Nevada	State Program	9	CO0026	07-31-16
New Hampshire	NELAP	1	205310	04-28-17
New Jersey	NELAP	2	CO004	06-30-17
New York	NELAP	2	11964	04-01-17
North Carolina (WW/SW)	State Program	4	358	12-31-16
North Dakota	State Program	8	R-034	01-09-17
Oklahoma	State Program	6	8614	08-31-16
Oregon	NELAP	10	4025	01-09-17
Pennsylvania	NELAP	3	68-00664	07-31-16
South Carolina	State Program	4	72002001	01-09-17
Texas	NELAP	6	T104704183-15-11	09-30-16
Utah	NELAP	8	CO00026	07-31-16
Virginia	NELAP	3	460232	06-14-17
Washington	State Program	10	C583	08-03-16
West Virginia DEP	State Program	3	354	11-30-16
Wisconsin	State Program	5	999615430	08-31-16
Wyoming (UST)	A2LA	8	2907.01	10-31-17

Laboratory: TestAmerica Sacramento

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		2928-01	01-31-17
Alaska (UST)	State Program	10	UST-055	12-18-16
Arizona	State Program	9	AZ0708	08-11-16
Arkansas DEQ	State Program	6	88-0691	06-17-17
California	State Program	9	2897	01-31-17
Colorado	State Program	8	CA00044	08-31-16
Connecticut	State Program	1	PH-0691	06-30-17
Florida	NELAP	4	E87570	06-30-17
Hawaii	State Program	9	N/A	01-31-17
Illinois	NELAP	5	200060	03-17-17
Kansas	NELAP	7	E-10375	07-31-16
Louisiana	NELAP	6	30612	06-30-17

* Certification renewal pending - certification considered valid.

Certification Summary

Client: HDR Inc
TestAmerica Job ID: 280-85171-1
Project/Site: Stewart International Airport (PFAS)

Laboratory: TestAmerica Sacramento (Continued)

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Maine	State Program	1	CA0004	04-18-18
Michigan	State Program	5	9947	01-31-18
Nevada	State Program	9	CA00044	07-31-16
New Jersey	NELAP	2	CA005	06-30-17
New York	NELAP	2	11666	04-01-17
Oregon	NELAP	10	4040	01-29-17
Pennsylvania	NELAP	3	68-01272	03-31-17
Texas	NELAP	6	T104704399	07-31-17
US Fish & Wildlife	Federal		LE148388-0	10-31-16
USDA	Federal		P330-11-00436	12-30-17
USEPA UCMR	Federal	1	CA00044	11-06-16
Utah	NELAP	8	CA00044	02-28-17
Virginia	NELAP	3	460278	03-14-17
Washington	State Program	10	C581	05-05-17
West Virginia (DW)	State Program	3	9930C	12-31-16
Wyoming	State Program	8	8TMS-L	01-29-17

Method PFC

Perfluronated Hydrocarbons (LC/MS) by Method PFC

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Matrix: Solid Level: Low

GC Column (1): Gemini-NX ID:

Client Sample ID	Lab Sample ID	PFOA #	PFOS #
SB001-0.5	280-85171-2	111	106
SB001-0.5 DL	280-85171-2 DL	110 D	104 D
SB001-13.0	280-85171-3	105	106
SB001-18.0	280-85171-4	108	102
SB002-0.5	280-85171-5	105	105
SB003-0.5	280-85171-6	102	107
SB006-0.5	280-85171-7	103	102
SB006-0.5 DL	280-85171-7 DL	103 D	110 D
SB006-8.0	280-85171-8	107	106
SB006-16.0	280-85171-9	104	91
SB007-0.5	280-85171-10	103	106
SB007-4.5	280-85171-11	107	106
SB-DUP	280-85171-12	103	105
SB007-16.0	280-85171-13	105	101
SB009-0.5	280-85171-14	105	103
SB008-0.5	280-85171-15	107	111
SB008-0.5 DL	280-85171-15 DL	100 D	95 D
SB009-6.0	280-85171-16	106	100
SB009-10.5	280-85171-17	105	103
SB008-6.0	280-85171-18	103	99
SB008-12.0	280-85171-19	108	112
SB002-4.5	280-85171-20	106	108
SB002-12.0	280-85171-21	111	97
SB003-7.5	280-85171-22	105	101
SB003-12.0	280-85171-23	107	101
SB004-0.5	280-85171-24	104	104
SB004-5.8	280-85171-26	108	104
SB004-12.0	280-85171-27	108	106
SB005-0.5	280-85171-28	108	101
SB005-6.0	280-85171-29	105	98
SB005-12.0	280-85171-30	108	100
	MB 280-332389/1-A	105	105
	MB 280-332390/1-A	108	101

	QC LIMITS
PFOA = 13C8 PFOA	57-153
PFOS = 13C8 PFOS	70-130

Column to be used to flag recovery values

FORM II DV-LC-0012

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Matrix: Solid Level: Low

GC Column (1): Gemini-NX ID:

Client Sample ID	Lab Sample ID	PFOA	#	PFOS	#
	LCS 280-332389/2-A	108		106	
	LCS 280-332390/2-A	105		107	
SB001-0.5 MS	280-85171-2 MS	102		99	
SB001-0.5 MS DL	280-85171-2 MS DL	103	D	106	D
SB003-12.0 MS	280-85171-23 MS	106		108	
SB001-0.5 MSD	280-85171-2 MSD	107		101	
SB001-0.5 MSD DL	280-85171-2 MSD DL	103	D	93	D
SB003-12.0 MSD	280-85171-23 MSD	107		111	

	QC LIMITS
PFOA = 13C8 PFOA	57-153
PFOS = 13C8 PFOS	70-130

Column to be used to flag recovery values

FORM II DV-LC-0012

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): Gemini-NX ID:

Client Sample ID	Lab Sample ID	PFOA #	PFOS #
FB-4	280-85171-1	101	103
FB-5	280-85171-25	98	102
	MB 280-332379/1-A	100	101
	LCS 280-332379/2-A	100	97
	280-85194-A-1-A MS	111	149 X
	280-85194-G-1-A MSD	100	116
	DLCK 280-328740/14	105	106

	QC LIMITS
PFOA = 13C8 PFOA	60-155
PFOS = 13C8 PFOS	45-130

Column to be used to flag recovery values

FORM II DV-LC-0012

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Matrix: Water Level: Low Lab File ID: PC516G07062.d

Lab ID: LCS 280-332379/2-A Client ID:

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
Perfluorobutane Sulfonate (PFBS)	0.177	0.141	80	70-134	
Perfluoroheptanoic acid (PFHpA)	0.200	0.191	95	70-135	
Perfluorohexane Sulfonate (PFHxS)	0.189	0.170	90	70-132	
Perfluorononanoic acid (PFNA)	0.200	0.172	86	69-143	
Perfluorooctanesulfonic acid (PFOS)	0.191	0.155	81	70-130	
Perfluorooctanoic acid (PFOA)	0.200	0.187	93	70-130	

Column to be used to flag recovery and RPD values

FORM III DV-LC-0012

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: PC516G07040.d

Lab ID: LCS 280-332389/2-A Client ID:

COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC	QC LIMITS REC	#
Perfluorobutane Sulfonate (PFBS)	16.1	13.65	85	68-130	
Perfluoroheptanoic acid (PFHpA)	18.2	18.86	104	70-130	
Perfluorohexane Sulfonate (PFHxS)	17.2	16.86	98	70-135	
Perfluorononanoic acid (PFNA)	18.2	17.00	93	64-138	
Perfluorooctanesulfonic acid (PFOS)	17.4	15.80	91	70-130	
Perfluorooctanoic acid (PFOA)	18.2	18.39	101	70-131	

Column to be used to flag recovery and RPD values

FORM III DV-LC-0012

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: PC516G08016.d

Lab ID: LCS 280-332390/2-A Client ID:

COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC	QC LIMITS REC	#
Perfluorobutane Sulfonate (PFBS)	16.1	13.58	84	68-130	
Perfluoroheptanoic acid (PFHpA)	18.2	17.37	95	70-130	
Perfluorohexane Sulfonate (PFHxS)	17.2	16.24	94	70-135	
Perfluorononanoic acid (PFNA)	18.2	16.37	90	64-138	
Perfluorooctanesulfonic acid (PFOS)	17.4	16.71	96	70-130	
Perfluorooctanoic acid (PFOA)	18.2	18.19	100	70-131	

Column to be used to flag recovery and RPD values

FORM III DV-LC-0012

FORM III
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: PC516G07044.d

Lab ID: 280-85171-2 MS Client ID: SB001-0.5 MS

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC	QC LIMITS REC	#
Perfluorobutane Sulfonate (PFBS)	22.0	0.51 J	19.24	85	68-130	
Perfluoroheptanoic acid (PFHpA)	24.8	1.94	27.59	103	70-130	
Perfluorohexane Sulfonate (PFHxS)	23.5	17.3	41.52	103	70-135	
Perfluorononanoic acid (PFNA)	24.8	2.72	25.23	91	64-138	
Perfluorooctanoic acid (PFOA)	24.8	4.67	29.18	99	70-131	

Column to be used to flag recovery and RPD values

FORM III DV-LC-0012

FORM III
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: PC516G08010.d

Lab ID: 280-85171-2 MS DL Client ID: SB001-0.5 MS DL

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	23.7	592	639.7	200	70-130	4 D

Column to be used to flag recovery and RPD values

FORM III DV-LC-0012

FORM III
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: PC516G08026.d

Lab ID: 280-85171-23 MS Client ID: SB003-12.0 MS

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC	QC LIMITS REC	#
Perfluorobutane Sulfonate (PFBS)	16.8	0.15 U	15.31	91	68-130	
Perfluoroheptanoic acid (PFHpA)	19.0	0.13 U	19.62	103	70-130	
Perfluorohexane Sulfonate (PFHxS)	18.0	0.30 U	17.83	99	70-135	
Perfluorononanoic acid (PFNA)	19.0	0.24 U	17.81	94	64-138	
Perfluorooctanesulfonic acid (PFOS)	18.1	0.15 U	17.70	98	70-130	
Perfluorooctanoic acid (PFOA)	19.0	0.25 U	18.81	99	70-131	

Column to be used to flag recovery and RPD values

FORM III DV-LC-0012

FORM III
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Matrix: Water Level: Low Lab File ID: PC516G07064.d

Lab ID: 280-85194-A-1-A MS Client ID:

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC	QC LIMITS REC	#
Perfluorobutane Sulfonate (PFBS)	0.156	0.44	0.438	0.3	70-134	F1
Perfluoroheptanoic acid (PFHpA)	0.176	0.50	0.617	64	70-135	F1
Perfluorohexane Sulfonate (PFHxS)	0.166	1.16	1.345	113	70-132	4
Perfluorononanoic acid (PFNA)	0.176	0.078	0.240	92	69-143	
Perfluorooctanesulfonic acid (PFOS)	0.168	1.31	1.499	111	70-130	4
Perfluorooctanoic acid (PFOA)	0.176	1.26	1.441	105	70-130	4

Column to be used to flag recovery and RPD values

FORM III DV-LC-0012

FORM III
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: PC516G07045.d

Lab ID: 280-85171-2 MSD Client ID: SB001-0.5 MSD

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Perfluorobutane Sulfonate (PFBS)	23.7	21.42	88	11	30	68-130	
Perfluoroheptanoic acid (PFHpA)	26.8	29.18	102	6	30	70-130	
Perfluorohexane Sulfonate (PFHxS)	25.3	41.08	94	1	30	70-135	
Perfluorononanoic acid (PFNA)	26.8	26.15	88	4	30	64-138	
Perfluorooctanoic acid (PFOA)	26.8	30.59	97	5	30	70-131	

Column to be used to flag recovery and RPD values

FORM III DV-LC-0012

FORM III
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: PC516G08011.d

Lab ID: 280-85171-2 MSD DL Client ID: SB001-0.5 MSD DL

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	25.6	519.5	-284	21	30	70-130	4 D

Column to be used to flag recovery and RPD values

FORM III DV-LC-0012

FORM III
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: PC516G08027.d

Lab ID: 280-85171-23 MSD Client ID: SB003-12.0 MSD

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Perfluorobutane Sulfonate (PFBS)	17.3	14.39	83	6	30	68-130	
Perfluoroheptanoic acid (PFHpA)	19.5	19.56	100	0	30	70-130	
Perfluorohexane Sulfonate (PFHxS)	18.5	17.80	96	0	30	70-135	
Perfluorononanoic acid (PFNA)	19.5	17.61	90	1	30	64-138	
Perfluorooctanesulfonic acid (PFOS)	18.7	19.27	103	8	30	70-130	
Perfluorooctanoic acid (PFOA)	19.5	19.37	99	3	30	70-131	

Column to be used to flag recovery and RPD values

FORM III DV-LC-0012

FORM III
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Matrix: Water Level: Low Lab File ID: PC516G07065.d

Lab ID: 280-85194-G-1-A MSD Client ID:

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Perfluorobutane Sulfonate (PFBS)	0.160	0.387	-31	12	30	70-134	F1
Perfluoroheptanoic acid (PFHpA)	0.181	0.579	42	6	30	70-135	F1
Perfluorohexane Sulfonate (PFHxS)	0.171	1.246	52	8	30	70-132	4
Perfluorononanoic acid (PFNA)	0.181	0.231	85	4	30	69-143	
Perfluorooctanesulfonic acid (PFOS)	0.173	1.460	86	3	30	70-130	4
Perfluorooctanoic acid (PFOA)	0.181	1.375	65	5	30	70-130	4

Column to be used to flag recovery and RPD values

FORM III DV-LC-0012

FORM III
LCMS DETECTION LIMIT CHECK STANDARD RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Matrix: Water Level: Low Lab File ID: PC516F06019.d

Lab ID: DLCK 280-328740/14 Client ID:

COMPOUND	SPIKE ADDED (ug/L)	DLCK CONCENTRATION (ug/L)	DLCK % REC	QC LIMITS REC	#
Perfluorobutane Sulfonate (PFBS)	0.443	0.419	95	70-130	
Perfluoroheptanoic acid (PFHpA)	0.500	0.433	87	70-130	
Perfluorohexane Sulfonate (PFHxS)	0.473	0.446	94	70-130	
Perfluorononanoic acid (PFNA)	0.500	0.439	88	70-130	
Perfluorooctanesulfonic acid (PFOS)	0.478	0.456	95	70-130	
Perfluorooctanoic acid (PFOA)	0.500	0.459	92	70-130	

Column to be used to flag recovery and RPD values

FORM III DV-LC-0012

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Lab File ID: PC516G07061.d Lab Sample ID: MB 280-332379/1-A

Matrix: Water Date Extracted: 07/05/2016 12:12

Instrument ID: LC_LCMS5 Date Analyzed: 07/07/2016 18:33

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 280-332379/2-A	PC516G07062.d	07/07/2016 18:46
	280-85194-A-1-A MS	PC516G07064.d	07/07/2016 19:10
	280-85194-G-1-A MSD	PC516G07065.d	07/07/2016 19:23
FB-4	280-85171-1	PC516G07069.d	07/07/2016 20:12
FB-5	280-85171-25	PC516G07070.d	07/07/2016 20:24

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Lab File ID: PC516G08015.d Lab Sample ID: MB 280-332390/1-A

Matrix: Solid Date Extracted: 07/05/2016 14:35

Instrument ID: LC_LCMS5 Date Analyzed: 07/08/2016 14:27

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 280-332390/2-A	PC516G08016.d	07/08/2016 14:39
SB009-6.0	280-85171-16	PC516G08017.d	07/08/2016 14:51
SB009-10.5	280-85171-17	PC516G08018.d	07/08/2016 15:04
SB008-6.0	280-85171-18	PC516G08019.d	07/08/2016 15:16
SB008-12.0	280-85171-19	PC516G08020.d	07/08/2016 15:28
SB002-4.5	280-85171-20	PC516G08021.d	07/08/2016 15:41
SB002-12.0	280-85171-21	PC516G08022.d	07/08/2016 15:53
SB003-7.5	280-85171-22	PC516G08023.d	07/08/2016 16:05
SB003-12.0	280-85171-23	PC516G08024.d	07/08/2016 16:18
SB003-12.0 MS	280-85171-23 MS	PC516G08026.d	07/08/2016 16:42
SB003-12.0 MSD	280-85171-23 MSD	PC516G08027.d	07/08/2016 16:55
SB004-0.5	280-85171-24	PC516G08028.d	07/08/2016 17:07
SB004-5.8	280-85171-26	PC516G08029.d	07/08/2016 17:19
SB004-12.0	280-85171-27	PC516G08030.d	07/08/2016 17:31
SB005-0.5	280-85171-28	PC516G08031.d	07/08/2016 17:44
SB005-6.0	280-85171-29	PC516G08032.d	07/08/2016 17:56
SB005-12.0	280-85171-30	PC516G08033.d	07/08/2016 18:08

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Lab File ID: PC516G07039.d Lab Sample ID: MB 280-332389/1-A

Matrix: Solid Date Extracted: 07/05/2016 14:35

Instrument ID: LC_LCMS5 Date Analyzed: 07/07/2016 14:03

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 280-332389/2-A	PC516G07040.d	07/07/2016 14:15
SB001-0.5	280-85171-2	PC516G07043.d	07/07/2016 14:52
SB001-0.5 MS	280-85171-2 MS	PC516G07044.d	07/07/2016 15:04
SB001-0.5 MSD	280-85171-2 MSD	PC516G07045.d	07/07/2016 15:16
SB001-13.0	280-85171-3	PC516G07046.d	07/07/2016 15:29
SB001-18.0	280-85171-4	PC516G07047.d	07/07/2016 15:41
SB002-0.5	280-85171-5	PC516G07048.d	07/07/2016 15:53
SB003-0.5	280-85171-6	PC516G07050.d	07/07/2016 16:18
SB006-0.5	280-85171-7	PC516G07051.d	07/07/2016 16:30
SB006-8.0	280-85171-8	PC516G07052.d	07/07/2016 16:43
SB006-16.0	280-85171-9	PC516G07053.d	07/07/2016 16:55
SB007-0.5	280-85171-10	PC516G07054.d	07/07/2016 17:07
SB007-4.5	280-85171-11	PC516G07055.d	07/07/2016 17:20
SB-DUP	280-85171-12	PC516G07056.d	07/07/2016 17:32
SB007-16.0	280-85171-13	PC516G07057.d	07/07/2016 17:44
SB009-0.5	280-85171-14	PC516G07058.d	07/07/2016 17:56
SB008-0.5	280-85171-15	PC516G07059.d	07/07/2016 18:09
SB001-0.5 DL	280-85171-2 DL	PC516G08009.d	07/08/2016 13:13
SB001-0.5 MS DL	280-85171-2 MS DL	PC516G08010.d	07/08/2016 13:25
SB001-0.5 MSD DL	280-85171-2 MSD DL	PC516G08011.d	07/08/2016 13:38
SB006-0.5 DL	280-85171-7 DL	PC516G08012.d	07/08/2016 13:50
SB008-0.5 DL	280-85171-15 DL	PC516G08013.d	07/08/2016 14:02

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Instrument ID: LC_LCMS5 Calibration Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calibration End Date: 06/06/2016 16:28

Calibration ID: 26146

		BA		HXA		HXS	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		27989040	4.19	22165860	5.83	2309602	6.26
UPPER LIMIT		41983560	4.69	33248790	6.33	3464403	6.76
LOWER LIMIT		13994520	3.69	11082930	5.33	1154801	5.76
LAB SAMPLE ID	CLIENT SAMPLE ID						
ICB 280-328740/12		28978482	4.19	21836187	5.96	2386106	6.43
ICV 280-328740/13		32017793	4.47	23574022	5.89	2511258	6.30
DLCK 280-328740/14		20323348	4.20	23600887	5.89	2616206	6.30
CCV 280-332793/3		34339325	4.57	21901297	6.14	2674404	6.54
MB 280-332389/1-A		28640381	4.62	21623791	6.19	3069522	6.59
LCS 280-332389/2-A		27428214	4.65	19661874	6.20	2642577	6.59
280-85171-2	SB001-0.5	27058747	4.58	19491282	6.16	2116801	6.57
280-85171-2 MS	SB001-0.5 MS	25736056	4.58	18340488	6.18	2026624	6.59
280-85171-2 MSD	SB001-0.5 MSD	27093902	4.50	19538496	6.09	2078722	6.51
280-85171-3	SB001-13.0	27952326	4.62	21394270	6.12	2639922	6.55
280-85171-4	SB001-18.0	26722697	4.65	20777646	6.16	2713403	6.59
280-85171-5	SB002-0.5	32228820	4.64	23074727	6.12	2436798	6.53
CCV 280-332793/14		32319038	4.58	20786895	6.08	2599148	6.50
280-85171-6	SB003-0.5	28302132	4.66	20232700	6.15	2144176	6.57
280-85171-7	SB006-0.5	22825860	4.55	18119069	6.05	1905918	6.48
280-85171-8	SB006-8.0	28740044	4.56	23599405	6.08	2533281	6.51
280-85171-9	SB006-16.0	27237734	4.56	21667187	6.07	2520880	6.49
280-85171-10	SB007-0.5	27953799	4.55	23129708	6.06	2547015	6.48
280-85171-11	SB007-4.5	29602063	4.51	21233081	6.02	2469639	6.44
280-85171-12	SB-DUP	25791344	4.51	20263107	6.01	2583313	6.41
280-85171-13	SB007-16.0	26505420	4.53	21259356	6.04	2751486	6.45
280-85171-14	SB009-0.5	27349138	4.49	22468935	6.00	2440570	6.41
280-85171-15	SB008-0.5	29297572	4.51	19634410	6.00	2282728	6.41
CCV 280-332793/25		31742951	4.52	20538521	6.03	2598904	6.43
MB 280-332379/1-A		36770661	4.42	24453644	5.97	2706045	6.39
LCS 280-332379/2-A		35664011	4.41	22708063	5.94	2804683	6.35
280-85194-A-1-A MS				2134569*	5.95	1845165	6.37
280-85194-G-1-A MSD				2153683*	5.90	1779406	6.32
280-85171-1	FB-4	35201507	4.33	22604078	6.02	2922753	6.42
280-85171-25	FB-5	34717412	4.27	22300714	5.89	2711223	6.32

BA = 13C4 PFBA (IS)
HXA = 13C2 PFHxA (IS)
HXS = 18O2 PFHxS (IS)

Area Limit = 50%-150% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII DV-LC-0012

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Instrument ID: LC_LCMS5 Calibration Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calibration End Date: 06/06/2016 16:28

Calibration ID: 26146

		BA		HXA		HXS	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		27989040	4.19	22165860	5.83	2309602	6.26
UPPER LIMIT		41983560	4.69	33248790	6.33	3464403	6.76
LOWER LIMIT		13994520	3.69	11082930	5.33	1154801	5.76
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCV 280-332793/36		29705007	4.36	19559404	5.92	2350808	6.35
CCV 280-333083/3		33975235	4.32	21589651	5.86	2581505	6.28
280-85171-2 DL	SB001-0.5 DL	6274144*	4.30	4299888*	5.86	383758*	6.29
280-85171-2 MS DL	SB001-0.5 MS DL	5928244*	4.34	4333697*	5.89	375942*	6.31
280-85171-2 MSD DL	SB001-0.5 MSD DL	6120374*	4.35	4270426*	5.92	494625*	6.36
280-85171-7 DL	SB006-0.5 DL	13676674*	4.28	9659608*	5.87	1146219*	6.29
280-85171-15 DL	SB008-0.5 DL	1654768*	4.24	987287*	5.85	123483*	6.26
CCV 280-333083/9		31617065	4.22	20219314	5.84	2493612	6.27
MB 280-332390/1-A		26841603	4.32	20894261	5.91	2670992	6.32
LCS 280-332390/2-A		25367573	4.28	18729932	5.86	2458813	6.29
280-85171-16	SB009-6.0	28263520	4.18	20665044	5.84	2298560	6.27
280-85171-17	SB009-10.5	23503834	4.32	19528973	5.95	2373530	6.39
280-85171-18	SB008-6.0	22963086	4.22	18721064	5.85	2379272	6.29
280-85171-19	SB008-12.0	24904389	4.18	19954900	5.84	2183171	6.27
280-85171-20	SB002-4.5	24296346	4.18	18867992	5.84	2399884	6.28
280-85171-21	SB002-12.0	26046444	4.29	20295351	5.86	2568460	6.29
280-85171-22	SB003-7.5	24253205	4.18	19478961	5.84	2383645	6.27
280-85171-23	SB003-12.0	24737400	4.30	19504812	5.89	2259021	6.32
CCV 280-333083/20		31648374	4.27	20968350	5.85	2633842	6.28
280-85171-23 MS	SB003-12.0 MS	25539965	4.28	18943704	5.86	2360873	6.29
280-85171-23 MSD	SB003-12.0 MSD	24140282	4.21	18016322	5.85	2386518	6.29
280-85171-24	SB004-0.5	29171760	4.28	21607789	5.85	2459759	6.29
280-85171-26	SB004-5.8	24820352	4.25	18580746	5.85	2473857	6.28
280-85171-27	SB004-12.0	25625874	4.22	19323709	5.85	2699745	6.29
280-85171-28	SB005-0.5	28744470	4.24	20591966	5.85	2365221	6.27
280-85171-29	SB005-6.0	25265458	4.22	19991594	5.84	2371866	6.27
280-85171-30	SB005-12.0	25252367	4.29	20433067	5.88	2548167	6.31
CCV 280-333083/30		30376165	4.22	19802874	5.81	2305882	6.24

BA = 13C4 PFBA (IS)
HXA = 13C2 PFHxA (IS)
HXS = 18O2 PFHxS (IS)

Area Limit = 50%-150% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII DV-LC-0012

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Instrument ID: LC_LCMS5 Calibration Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calibration End Date: 06/06/2016 16:28

Calibration ID: 26146

		OA		PFOS		NA	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		29955425	6.60	8404326	6.87	21941427	6.89
UPPER LIMIT		44933138	7.10	12606489	7.37	32912141	7.39
LOWER LIMIT		14977713	6.10	4202163	6.37	10970714	6.39
LAB SAMPLE ID	CLIENT SAMPLE ID						
ICB 280-328740/12		34004746	6.78	9303800	7.07	25696131	7.09
ICV 280-328740/13		33074850	6.63	9669285	6.90	25183863	6.91
DLCK 280-328740/14		34601296	6.62	9456457	6.88	27571989	6.90
CCV 280-332793/3		35211020	6.87	9955311	7.13	24676044	7.16
MB 280-332389/1-A		35157747	6.93	10381794	7.19	28662109	7.21
LCS 280-332389/2-A		30946805	6.90	9969791	7.15	24417939	7.17
280-85171-2	SB001-0.5	28535882	6.90	5890936	7.15	15603289	7.18
280-85171-2 MS	SB001-0.5 MS	26956020	6.92	5697145	7.17	15384201	7.20
280-85171-2 MSD	SB001-0.5 MSD	27348333	6.85	6348311	7.11	16807172	7.13
280-85171-3	SB001-13.0	33634293	6.88	9629394	7.13	25589175	7.16
280-85171-4	SB001-18.0	32460797	6.92	9900790	7.17	26042467	7.19
280-85171-5	SB002-0.5	33269694	6.85	9234646	7.11	27259241	7.13
CCV 280-332793/14		31623912	6.83	9436691	7.09	25604400	7.12
280-85171-6	SB003-0.5	30316635	6.90	7897236	7.15	22619328	7.17
280-85171-7	SB006-0.5	26530828	6.82	6526048	7.08	17866844	7.10
280-85171-8	SB006-8.0	33827838	6.84	9524730	7.09	27519119	7.12
280-85171-9	SB006-16.0	32127639	6.82	9764142	7.08	24971764	7.10
280-85171-10	SB007-0.5	31940196	6.83	8574019	7.09	22207487	7.12
280-85171-11	SB007-4.5	34044543	6.78	8665115	7.05	27827484	7.07
280-85171-12	SB-DUP	31464817	6.75	9145900	7.03	25118073	7.05
280-85171-13	SB007-16.0	33708286	6.80	9770291	7.07	25765678	7.09
280-85171-14	SB009-0.5	32332671	6.74	9216587	7.01	25100974	7.03
280-85171-15	SB008-0.5	30638460	6.75	3300063*	7.03	10020050*	7.06
CCV 280-332793/25		31388456	6.77	9225234	7.04	24052202	7.06
MB 280-332379/1-A		38562461	6.72	10650628	6.98	29804373	7.00
LCS 280-332379/2-A		34171982	6.68	10525662	6.95	27086938	6.97
280-85194-A-1-A MS		12232069*	6.69	6435564	6.95	11281112	6.97
280-85194-G-1-A MSD		13415880*	6.66	6203714	6.94	11566060	6.96
280-85171-1	FB-4	36213720	6.75	10056761	7.01	26929474	7.03
280-85171-25	FB-5	36389755	6.66	10028729	6.94	26530570	6.95

OA = 13C4 PFOA (IS)
PFOS = 13C4 PFOS (IS)
NA = 13C5 PFNA (IS)

Area Limit = 50%-150% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII DV-LC-0012

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Instrument ID: LC_LCMS5 Calibration Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calibration End Date: 06/06/2016 16:28

Calibration ID: 26146

		OA		PFOS		NA	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		29955425	6.60	8404326	6.87	21941427	6.89
UPPER LIMIT		44933138	7.10	12606489	7.37	32912141	7.39
LOWER LIMIT		14977713	6.10	4202163	6.37	10970714	6.39
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCV 280-332793/36		31652528	6.70	8890618	6.97	24625930	6.99
CCV 280-333083/3		31748602	6.63	9402312	6.91	23933314	6.93
280-85171-2 DL	SB001-0.5 DL	6041589*	6.63	1682562*	6.90	4595026*	6.93
280-85171-2 MS DL	SB001-0.5 MS DL	6161521*	6.66	1554846*	6.94	4374849*	6.96
280-85171-2 MSD DL	SB001-0.5 MSD DL	6192586*	6.70	1582018*	6.97	4668093*	6.99
280-85171-7 DL	SB006-0.5 DL	14936719*	6.63	3737991*	6.91	10530214*	6.93
280-85171-15 DL	SB008-0.5 DL	1641697*	6.62	495477*	6.89	1076705*	6.91
CCV 280-333083/9		32506817	6.61	8842422	6.89	24831049	6.91
MB 280-332390/1-A		33523497	6.67	9355418	6.93	25925451	6.95
LCS 280-332390/2-A		29205573	6.64	8739065	6.91	23679201	6.93
280-85171-16	SB009-6.0	32579011	6.62	9071912	6.89	26808370	6.91
280-85171-17	SB009-10.5	29763897	6.72	8584071	6.98	22413122	7.00
280-85171-18	SB008-6.0	31079472	6.63	8865132	6.90	24159209	6.92
280-85171-19	SB008-12.0	30438399	6.62	7859237	6.89	23977089	6.91
280-85171-20	SB002-4.5	30216727	6.62	8611755	6.90	24886199	6.92
280-85171-21	SB002-12.0	31158697	6.63	9276321	6.90	26205531	6.92
280-85171-22	SB003-7.5	29724459	6.62	8765779	6.89	23677588	6.91
280-85171-23	SB003-12.0	30251301	6.67	8833155	6.94	24442287	6.97
CCV 280-333083/20		31894478	6.63	9222060	6.91	23614958	6.93
280-85171-23 MS	SB003-12.0 MS	29170742	6.63	8579930	6.90	23120387	6.92
280-85171-23 MSD	SB003-12.0 MSD	28401443	6.63	7901274	6.89	22827306	6.92
280-85171-24	SB004-0.5	31872652	6.63	8543416	6.90	25318815	6.92
280-85171-26	SB004-5.8	29942049	6.62	8678331	6.90	24288024	6.92
280-85171-27	SB004-12.0	30541890	6.64	8973164	6.91	24541121	6.94
280-85171-28	SB005-0.5	31906237	6.62	8717319	6.90	25595183	6.92
280-85171-29	SB005-6.0	31801614	6.62	9193803	6.89	26213206	6.91
280-85171-30	SB005-12.0	30854261	6.65	9314621	6.93	24841912	6.95
CCV 280-333083/30		31520361	6.59	8739348	6.87	24969715	6.90

OA = 13C4 PFOA (IS)
PFOS = 13C4 PFOS (IS)
NA = 13C5 PFNA (IS)

Area Limit = 50%-150% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII DV-LC-0012

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Instrument ID: LC_LCMS5 Calibration Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calibration End Date: 06/06/2016 16:28

Calibration ID: 26146

		DA		UNA		DOA	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		24627236	7.13	14935970	7.34	31753371	7.51
UPPER LIMIT		36940854	7.63	22403955	7.84	47630057	8.01
LOWER LIMIT		12313618	6.63	7467985	6.84	15876686	7.01
LAB SAMPLE ID	CLIENT SAMPLE ID						
ICB 280-328740/12		26344510	7.33	15946426	7.54	35155268	7.71
ICV 280-328740/13		27322567	7.16	17486001	7.37	34783992	7.55
DLCK 280-328740/14		28251355	7.13	17474457	7.34	35228011	7.51
CCV 280-332793/3		26933680	7.39	16415747	7.58	35448766	7.75
MB 280-332389/1-A		31920462	7.44	19463708	7.64	42686742	7.80
LCS 280-332389/2-A		27271252	7.41	16188860	7.60	35068729	7.77
280-85171-2	SB001-0.5	24586263	7.41	14883106	7.61	29913469	7.78
280-85171-2 MS	SB001-0.5 MS	23453697	7.42	13767678	7.61	28935670	7.78
280-85171-2 MSD	SB001-0.5 MSD	23989539	7.37	14598511	7.58	29870023	7.74
280-85171-3	SB001-13.0	27541367	7.39	17892007	7.58	36807032	7.75
280-85171-4	SB001-18.0	28106216	7.42	16881948	7.62	35571362	7.78
280-85171-5	SB002-0.5	28508567	7.37	17470014	7.58	36312862	7.74
CCV 280-332793/14		25744397	7.36	15840989	7.56	33927264	7.73
280-85171-6	SB003-0.5	25364522	7.39	16093824	7.58	32606308	7.75
280-85171-7	SB006-0.5	22441725	7.34	14096390	7.55	29338047	7.73
280-85171-8	SB006-8.0	30757562	7.35	18763600	7.56	40613362	7.73
280-85171-9	SB006-16.0	27087215	7.34	17019620	7.55	35458048	7.72
280-85171-10	SB007-0.5	27642295	7.35	17130711	7.56	36875900	7.73
280-85171-11	SB007-4.5	27712130	7.31	16704951	7.52	36957016	7.69
280-85171-12	SB-DUP	27122166	7.29	16504479	7.51	33807843	7.69
280-85171-13	SB007-16.0	27615572	7.33	16997251	7.53	36025781	7.70
280-85171-14	SB009-0.5	27063318	7.28	16281203	7.50	35667599	7.68
280-85171-15	SB008-0.5	25850220	7.29	15883651	7.51	34367232	7.69
CCV 280-332793/25		26668377	7.30	15994187	7.51	34154228	7.69
MB 280-332379/1-A		32200204	7.24	18738423	7.45	28024023	7.63
LCS 280-332379/2-A		28572422	7.23	17319237	7.43	27448644	7.61
280-85194-A-1-A MS		16718403	7.22	8826555	7.43	9537837*	7.61
280-85194-G-1-A MSD		16394918	7.21	8624164	7.42	8650682*	7.61
280-85171-1	FB-4	28302631	7.26	16836464	7.46	29339034	7.64
280-85171-25	FB-5	29132722	7.21	16923408	7.41	26715035	7.58

DA = 13C2 PFDA (IS)
UNA = 13C2 PFUnA (IS)
DOA = 13C2 PFDoA (IS)

Area Limit = 50%-150% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII DV-LC-0012

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Instrument ID: LC_LCMS5 Calibration Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calibration End Date: 06/06/2016 16:28

Calibration ID: 26146

		DA		UNA		DOA	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		24627236	7.13	14935970	7.34	31753371	7.51
UPPER LIMIT		36940854	7.63	22403955	7.84	47630057	8.01
LOWER LIMIT		12313618	6.63	7467985	6.84	15876686	7.01
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCV 280-332793/36		25573568	7.23	15862074	7.44	34018684	7.61
CCV 280-333083/3		27110708	7.19	16100934	7.41	34196739	7.59
280-85171-2 DL	SB001-0.5 DL	5138419*	7.19	3368239*	7.40	6712640*	7.59
280-85171-2 MS DL	SB001-0.5 MS DL	4911395*	7.22	3291171*	7.43	6404522*	7.62
280-85171-2 MSD DL	SB001-0.5 MSD DL	5104240*	7.23	3097514*	7.45	6759408*	7.63
280-85171-7 DL	SB006-0.5 DL	12527940	7.19	7846790	7.40	15331508*	7.58
280-85171-15 DL	SB008-0.5 DL	1474408*	7.17	847936*	7.40	1730188*	7.57
CCV 280-333083/9		26404811	7.16	15803654	7.38	33440029	7.56
MB 280-332390/1-A		27415338	7.21	16383053	7.42	34023996	7.61
LCS 280-332390/2-A		23484684	7.18	14573817	7.40	29511763	7.56
280-85171-16	SB009-6.0	27676719	7.17	16999350	7.39	35820771	7.56
280-85171-17	SB009-10.5	24895406	7.24	14682386	7.44	32026882	7.62
280-85171-18	SB008-6.0	25564011	7.17	16175413	7.38	32344115	7.56
280-85171-19	SB008-12.0	25341803	7.17	15843323	7.38	31908388	7.56
280-85171-20	SB002-4.5	26022904	7.18	15522358	7.40	31485043	7.58
280-85171-21	SB002-12.0	27243522	7.17	17009840	7.38	34806285	7.56
280-85171-22	SB003-7.5	25110593	7.17	16020810	7.38	32756894	7.56
280-85171-23	SB003-12.0	25295408	7.23	15637122	7.44	32602169	7.62
CCV 280-333083/20		27775691	7.18	16511646	7.40	34961300	7.58
280-85171-23 MS	SB003-12.0 MS	25448091	7.18	15370710	7.40	31965663	7.57
280-85171-23 MSD	SB003-12.0 MSD	23440175	7.17	14400975	7.39	29495797	7.56
280-85171-24	SB004-0.5	27484160	7.18	17390819	7.40	34598040	7.57
280-85171-26	SB004-5.8	25208766	7.17	16013911	7.40	31050728	7.57
280-85171-27	SB004-12.0	26941191	7.20	16485832	7.41	33668281	7.60
280-85171-28	SB005-0.5	27440242	7.18	17579814	7.40	32587328	7.57
280-85171-29	SB005-6.0	26994708	7.16	15735896	7.38	33188861	7.56
280-85171-30	SB005-12.0	26852625	7.21	16819448	7.42	33722630	7.60
CCV 280-333083/30		26082802	7.15	15905649	7.37	33243059	7.56

DA = 13C2 PFDA (IS)
UNA = 13C2 PFUnA (IS)
DOA = 13C2 PFDoA (IS)

Area Limit = 50%-150% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII DV-LC-0012

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Instrument ID: LC_LCMS5 Calibration Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calibration End Date: 06/06/2016 16:28

Calibration ID: 26146

		FOSA					
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		24015655	7.61				
UPPER LIMIT		36023483	8.11				
LOWER LIMIT		12007828	7.11				
LAB SAMPLE ID	CLIENT SAMPLE ID						
ICB 280-328740/12		26245096	7.82				
ICV 280-328740/13		26768431	7.64				
DLCK 280-328740/14		27255655	7.61				
CCV 280-332793/3		29177054	7.87				
MB 280-332389/1-A		31603533	7.92				
LCS 280-332389/2-A		29466495	7.88				
280-85171-2	SB001-0.5	19358129	7.83				
280-85171-2 MS	SB001-0.5 MS	18434993	7.83				
280-85171-2 MSD	SB001-0.5 MSD	19414709	7.79				
280-85171-3	SB001-13.0	27978843	7.80				
280-85171-4	SB001-18.0	28543702	7.83				
280-85171-5	SB002-0.5	22515369	7.79				
CCV 280-332793/14		25446644	7.78				
280-85171-6	SB003-0.5	18778120	7.80				
280-85171-7	SB006-0.5	15663012	7.78				
280-85171-8	SB006-8.0	26618579	7.78				
280-85171-9	SB006-16.0	27398463	7.76				
280-85171-10	SB007-0.5	26559408	7.78				
280-85171-11	SB007-4.5	23144302	7.73				
280-85171-12	SB-DUP	26484099	7.73				
280-85171-13	SB007-16.0	28658601	7.75				
280-85171-14	SB009-0.5	26019353	7.72				
280-85171-15	SB008-0.5	20987139	7.73				
CCV 280-332793/25		25844475	7.73				
MB 280-332379/1-A		733000*	7.68				
LCS 280-332379/2-A		638326*	7.67				
280-85194-A-1-A MS		633003*	7.69				
280-85194-G-1-A MSD		583983*	7.68				
280-85171-1	FB-4	1044580*	7.73				
280-85171-25	FB-5	778285*	7.67				

FOSA = 13C8 FOSA (IS)

Area Limit = 50%-150% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII DV-LC-0012

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Instrument ID: LC_LCMS5 Calibration Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calibration End Date: 06/06/2016 16:28

Calibration ID: 26146

		FOSA					
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		24015655	7.61				
UPPER LIMIT		36023483	8.11				
LOWER LIMIT		12007828	7.11				
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCV 280-332793/36		25932993	7.70				
CCV 280-333083/3		23467548	7.61				
280-85171-2 DL	SB001-0.5 DL	4833784*	7.61				
280-85171-2 MS DL	SB001-0.5 MS DL	4546222*	7.63				
280-85171-2 MSD DL	SB001-0.5 MSD DL	4922201*	7.65				
280-85171-7 DL	SB006-0.5 DL	9253915*	7.61				
280-85171-15 DL	SB008-0.5 DL	1325185*	7.60				
CCV 280-333083/9		24543830	7.58				
MB 280-332390/1-A		27217782	7.62				
LCS 280-332390/2-A		24388688	7.58				
280-85171-16	SB009-6.0	23490881	7.58				
280-85171-17	SB009-10.5	24607912	7.65				
280-85171-18	SB008-6.0	25536191	7.59				
280-85171-19	SB008-12.0	22674067	7.58				
280-85171-20	SB002-4.5	24995374	7.61				
280-85171-21	SB002-12.0	26630541	7.59				
280-85171-22	SB003-7.5	25527800	7.59				
280-85171-23	SB003-12.0	25486883	7.65				
CCV 280-333083/20		25818362	7.61				
280-85171-23 MS	SB003-12.0 MS	25583383	7.60				
280-85171-23 MSD	SB003-12.0 MSD	25029786	7.60				
280-85171-24	SB004-0.5	22947664	7.61				
280-85171-26	SB004-5.8	24994666	7.60				
280-85171-27	SB004-12.0	27093125	7.62				
280-85171-28	SB005-0.5	21611727	7.61				
280-85171-29	SB005-6.0	26411581	7.58				
280-85171-30	SB005-12.0	27050342	7.63				
CCV 280-333083/30		25450443	7.61				

FOSA = 13C8 FOSA (IS)

Area Limit = 50%-150% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII DV-LC-0012

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: FB-4 | Lab Sample ID: 280-85171-1

Matrix: Water | Lab File ID: PC516G07069.d

Analysis Method: DV-LC-0012 | Date Collected: 06/29/2016 16:00

Extraction Method: 3535 | Date Extracted: 07/05/2016 12:12

Sample wt/vol: 248.6(mL) | Date Analyzed: 07/07/2016 20:12

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 332793 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.0083	U	0.020	0.0083
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.013	U	0.030	0.013
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.0070	U	0.030	0.0070
375-95-1	Perfluorononanoic acid (PFNA)	0.017	U	0.040	0.017
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.013	U	0.030	0.013
335-67-1	Perfluorooctanoic acid (PFOA)	0.0098	U	0.020	0.0098

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	101		60-155
STL01054	13C8 PFOS	103		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07069.d
Lims ID: 280-85171-B-1-A Lab Sample ID: 280-85171-1
Client ID: FB-4
Sample Type: Client
Inject. Date: 07-Jul-2016 20:12:26 ALS Bottle#: 0 Worklist Smp#: 34
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85171-B-1-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 08-Jul-2016 09:16:52 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK002

First Level Reviewer: fiedlerh Date: 08-Jul-2016 08:29:01

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.333	4.522	-0.189		35201507	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.592				ND			
298.9 > 98.9		5.592							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	6.017	6.027	-0.010		22604078	10.0			
10 Perfluorohexane Sulfonate									
398.9 > 80.0		6.433				ND			
398.9 > 98.9		6.433							
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.434				ND			
363.0 > 168.9		6.434							
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.424	6.433	-0.009		2922753	9.46			
$ 14 13C8 PFOA									
421.0 > 375.9	6.745	6.773	-0.028	1.000	29618440	10.1			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.745	6.773	-0.028		36213720	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9		6.774				ND			
413.0 > 169.0		6.774							
$ 18 13C8 PFOS									
506.9 > 80.0	7.008	7.036	-0.028	1.000	6303994	9.80			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	7.008	7.036	-0.028		10056761	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9		7.037				ND			
498.9 > 98.9		7.037							

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 21 13C5 PFNA (IS)									
467.9 > 423.0	7.028	7.056	-0.028		26929474	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9		7.056				ND			
463.0 > 218.9		7.056							
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.263	7.301	-0.038		28302631	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.461	7.508	-0.047		16836464	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.640	7.687	-0.047		29339034	10.0			
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.728	7.728	0.0		1044580	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

s - Failed ISTD Recovery Test

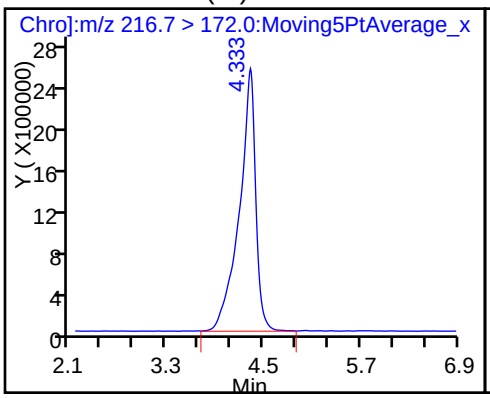
Report Date: 08-Jul-2016 09:17:45 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

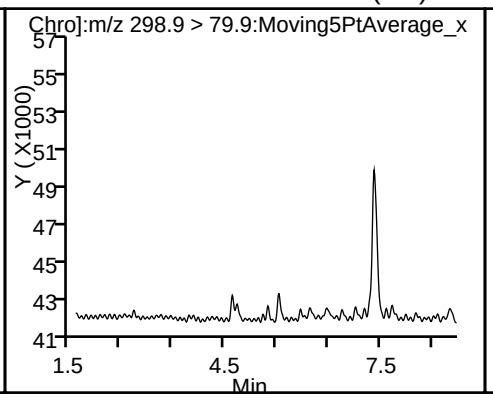
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07069.d

Injection Date:	07-Jul-2016 20:12:26	Instrument ID:	LC_LCMS5		
Lims ID:	280-85171-B-1-A	Lab Sample ID:	280-85171-1		
Client ID:	FB-4				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	34
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

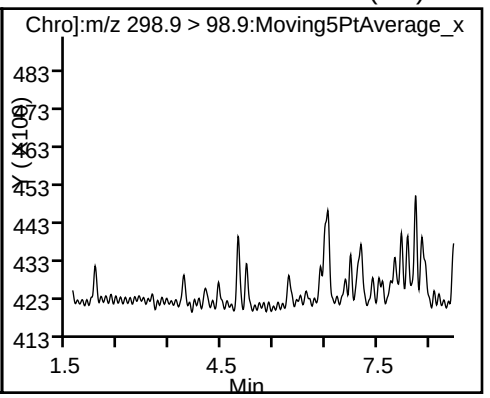
* 1 13C4 PFBA (IS)



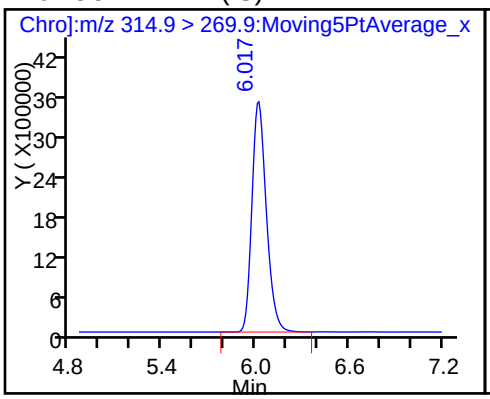
4 Perfluorobutane Sulfonate (ND)



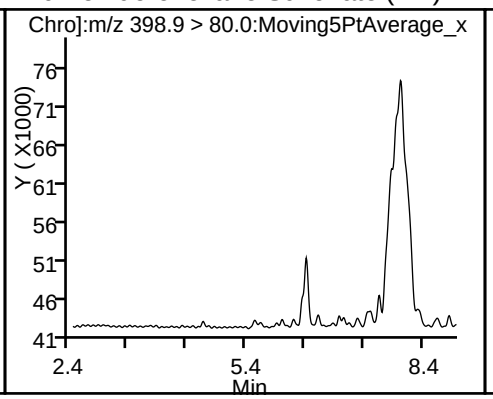
4 Perfluorobutane Sulfonate (ND)



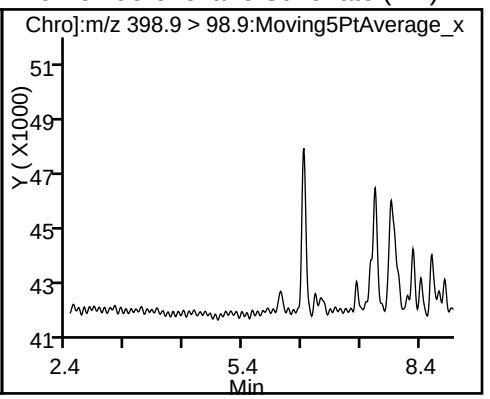
* 6 13C2 PFHxA (IS)



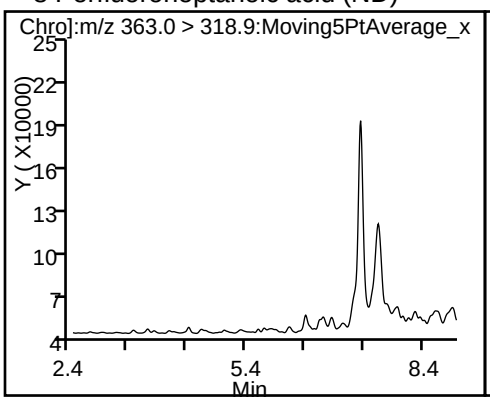
10 Perfluorohexane Sulfonate (ND)



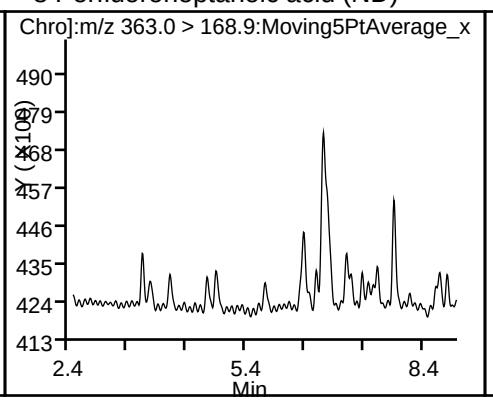
10 Perfluorohexane Sulfonate (ND)



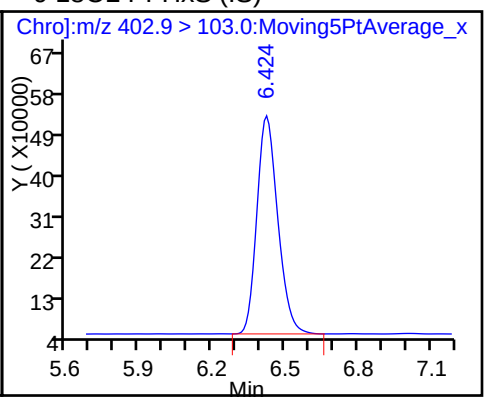
8 Perfluoroheptanoic acid (ND)



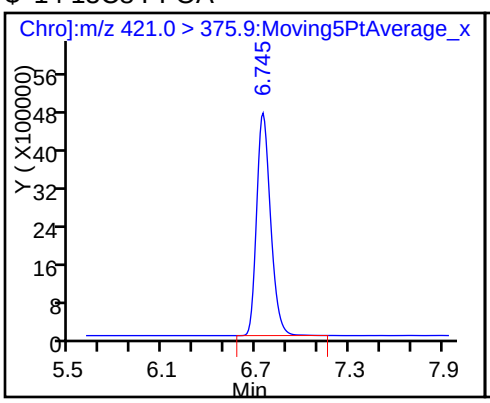
8 Perfluoroheptanoic acid (ND)



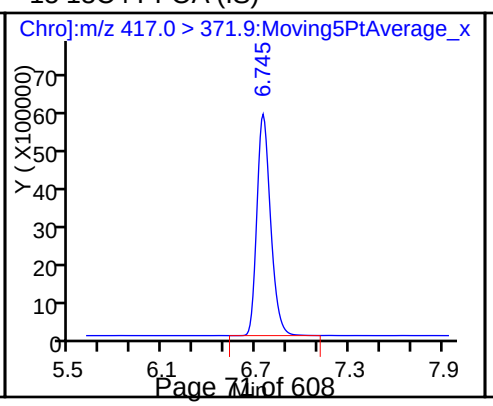
* 9 18O2 PFHxS (IS)



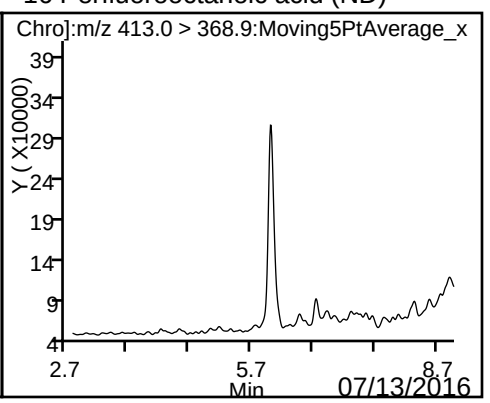
$ 14 13C8 PFOA



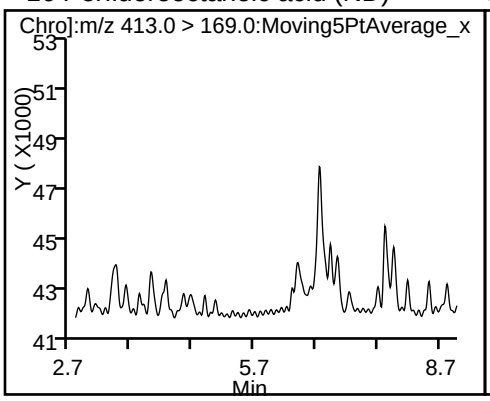
* 15 13C4 PFOA (IS)



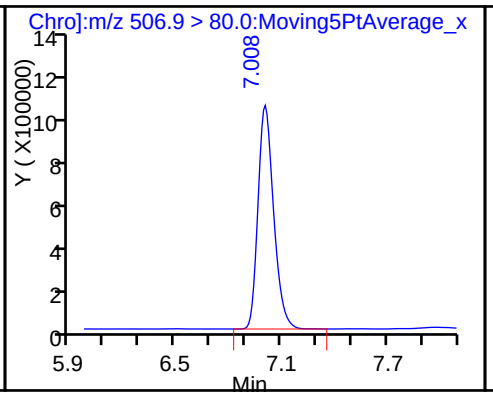
16 Perfluorooctanoic acid (ND)



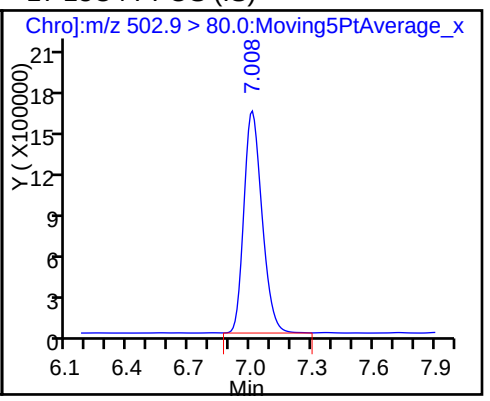
16 Perfluorooctanoic acid (ND)



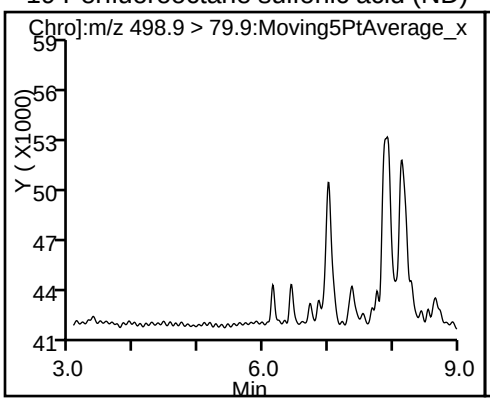
$ 18 13C8 PFOS



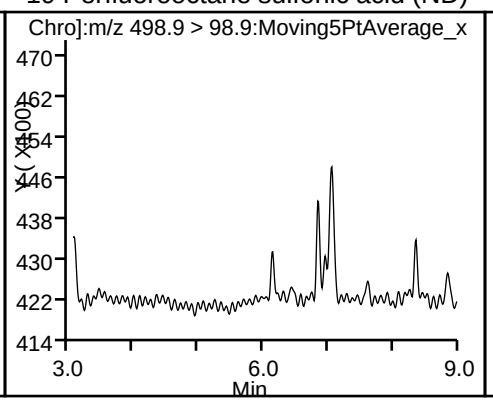
* 17 13C4 PFOS (IS)



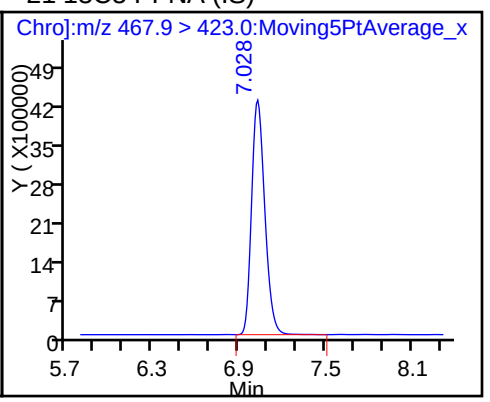
19 Perfluorooctane sulfonic acid (ND)



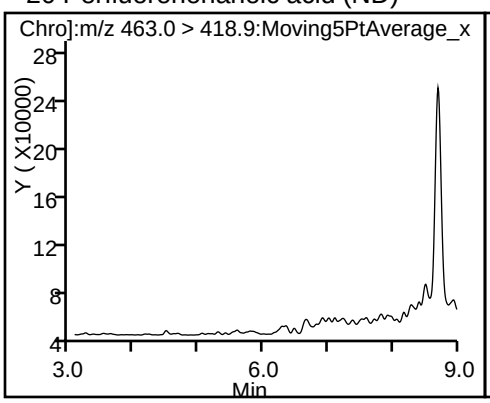
19 Perfluorooctane sulfonic acid (ND)



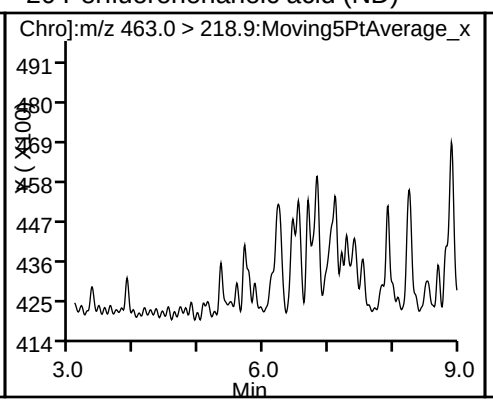
* 21 13C5 PFNA (IS)



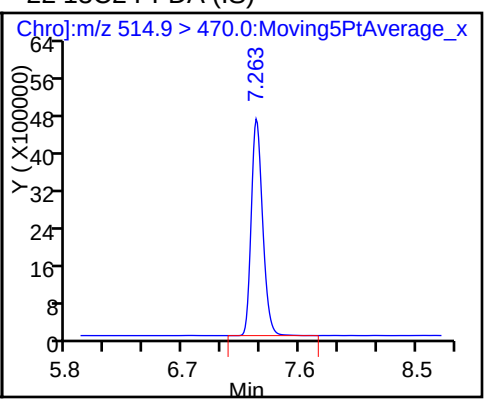
20 Perfluorononanoic acid (ND)



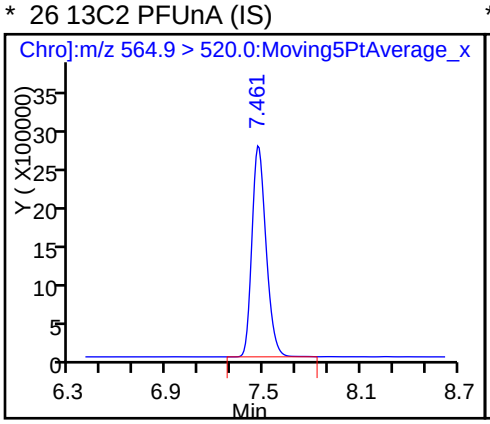
20 Perfluorononanoic acid (ND)



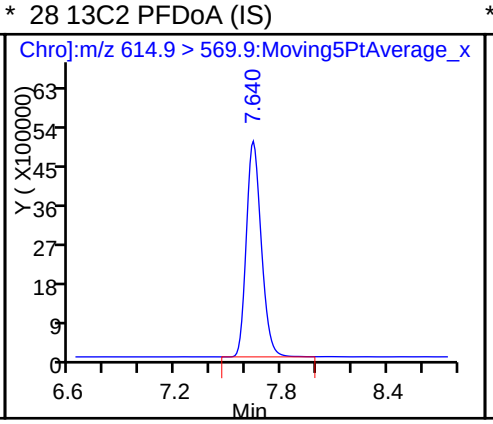
* 22 13C2 PFDA (IS)



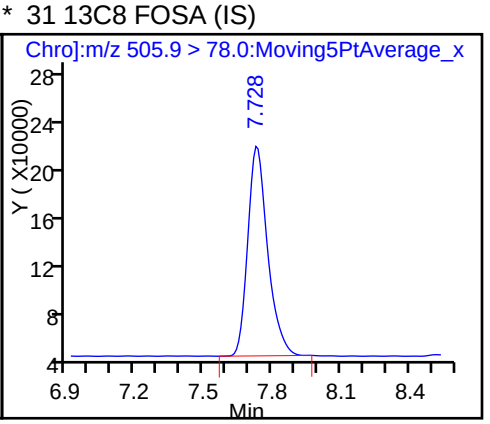
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB001-0.5 | Lab Sample ID: 280-85171-2

Matrix: Solid | Lab File ID: PC516G07043.d

Analysis Method: DV-LC-0012 | Date Collected: 06/29/2016 16:55

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.61(g) | Date Analyzed: 07/07/2016 14:52

Con. Extract Vol.: 20(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 33.2 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 332793 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.51	J	1.13	0.20
375-85-9	Perfluoroheptanoic acid (PFHpA)	1.94		1.13	0.17
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	17.3		1.13	0.39
375-95-1	Perfluorononanoic acid (PFNA)	2.72		1.13	0.31
335-67-1	Perfluorooctanoic acid (PFOA)	4.67		1.13	0.32

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	111		57-153
STL01054	13C8 PFOS	106		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07043.d
Lims ID: 280-85171-A-2-A Lab Sample ID: 280-85171-2
Client ID: SB001-0.5
Sample Type: Client
Inject. Date: 07-Jul-2016 14:52:18 ALS Bottle#: 0 Worklist Smp#: 8
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85171-A-2-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 08-Jul-2016 09:15:01 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK002

First Level Reviewer: fiedlerh Date: 08-Jul-2016 08:03:05

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.579	4.569	0.010		27058747	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	4.579	4.570	0.009	1.000	2041416	0.7065			
3 Perfluoropentanoic acid									M
263.0 > 218.9	5.611	5.592	0.019	0.911	4357950	1.88			M
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.724	5.705	0.019	0.872	203242	0.1819			
298.9 > 98.9	5.715	5.705	0.010	0.870	74865		2.71(1.80-3.35)		
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.724	5.705	0.019	0.872	203242	0.1819			
298.9 > 98.9	5.715	5.705	0.010	0.870	74865		2.71(2.57-2.57)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	6.159	6.141	0.018		19491282	10.0			
7 Perfluorohexanoic acid									M
313.0 > 268.9	6.160	6.141	0.019	1.000	1718660	0.9126			M
313.0 > 118.6	6.150	6.141	0.009	0.998	45818		37.51(34.05-63.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.566	6.537	0.029		2116801	9.46			
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.566	6.538	0.028	1.000	5347173	6.14			
398.9 > 98.9	6.575	6.538	0.037	1.001	1861247		2.87(1.85-1.85)		
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.566	6.538	0.028	1.000	5347173	6.14			R
398.9 > 98.9	6.575	6.538	0.037	1.001	1861247		2.87(1.30-2.41)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.566	6.538	0.028	0.952	1787000	0.6889			
363.0 > 168.9	6.566	6.538	0.028	0.952	403886		4.42(3.35-6.23)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.886	6.858	0.028	0.963	661253	0.8946			
449.0 > 98.9	6.886	6.858	0.028	0.963	194626		3.40(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.886	6.858	0.028	0.963	661253	0.8946			
449.0 > 98.9	6.886	6.858	0.028	0.963	194626		3.40(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.896	6.868	0.028	1.000	25052948	10.9			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.897	6.868	0.029		28535882	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.897	6.868	0.029	1.000	5096986	1.66			
413.0 > 169.0	6.897	6.868	0.029	1.000	1526450		3.34(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	7.150	7.131	0.019	1.000	3721737	9.88			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	7.150	7.131	0.019		5890936	9.56			
19 Perfluorooctane sulfonic acid									RE
498.9 > 79.9	7.150	7.131	0.019	1.000	162615541	226.8			RE
498.9 > 98.9	7.150	7.131	0.019	1.000	52451250		3.10(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	7.179	7.160	0.019		15603289	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	7.180	7.151	0.029	1.000	1755490	0.9637			
463.0 > 218.9	7.170	7.151	0.019	0.999	272139		6.45(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.405	7.386	0.019		24586263	10.0			
23 Perfluorodecanoic acid									R
513.0 > 468.9	7.414	7.386	0.028	1.001	2536113	0.99			R
513.0 > 219.0	7.405	7.386	0.019	1.000	248161		10.22(10.49-19.48)		
25 Perfluorodecane Sulfonate									R
598.9 > 79.9	7.479	7.555	-0.076	1.046	1895325	2.46			R
598.9 > 99.0	7.584	7.555	0.029	1.061	181871		10.42(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.479	7.555	-0.076	1.046	1895325	2.46			
598.9 > 99.0	7.584	7.555	0.029	1.061	181871		10.42(2.84-2.84)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.612	7.584	0.028		14883106	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.613	7.584	0.029	1.000	693952	0.2776			R
563.0 > 268.9	7.594	7.584	0.010	0.998	61181		11.34(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.782	7.753	0.029		29913469	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9		7.754				ND			
613.0 > 168.9		7.754							
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.832	7.870	-0.038		19358129	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0		7.871				ND			
30 Perfluorotridecanoic acid									
663.0 > 618.9		7.895				ND			
33 Perfluorotetradecanoic acid									
712.9 > 668.8		8.027				ND			
712.9 > 169.0		8.027							

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

R - Failed Signal Ratio Test

E - Exceeded Maximum Amount

Review Flags

M - Manually Integrated

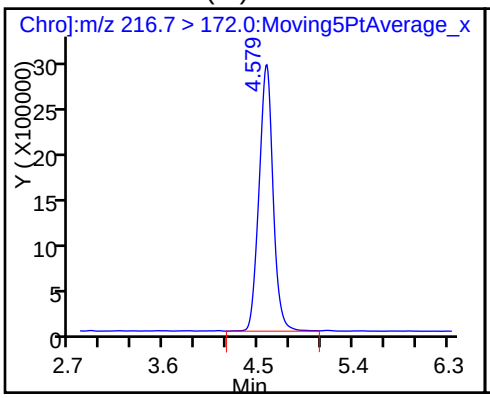
Report Date: 08-Jul-2016 09:15:30 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

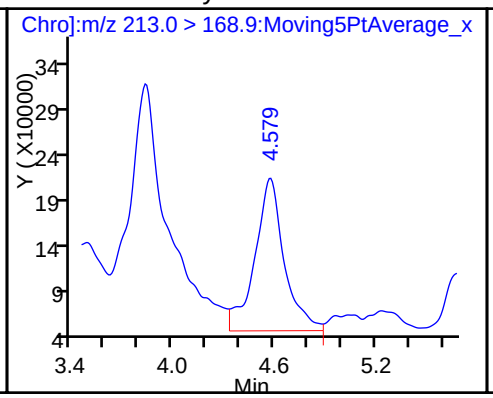
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07043.d

Injection Date:	07-Jul-2016 14:52:18	Instrument ID:	LC_LCMS5		
Lims ID:	280-85171-A-2-A	Lab Sample ID:	280-85171-2		
Client ID:	SB001-0.5				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	8
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

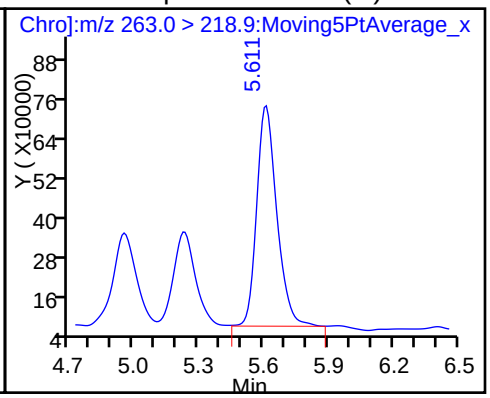
* 1 13C4 PFBA (IS)



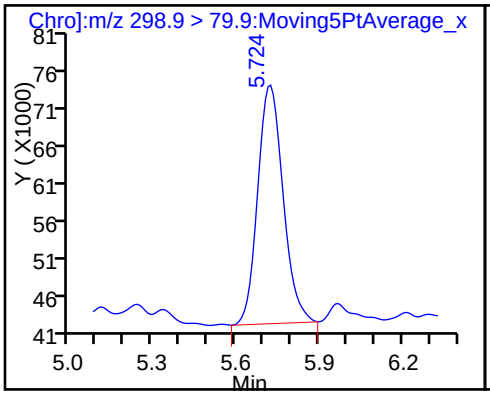
2 Perfluorobutyric acid



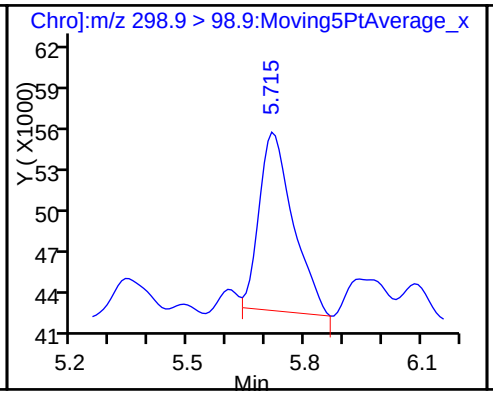
3 Perfluoropentanoic acid (M)



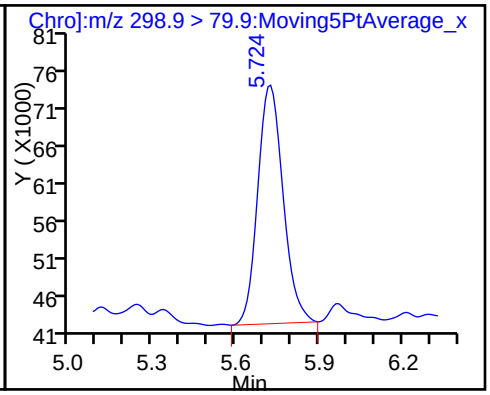
4 Perfluorobutane Sulfonate



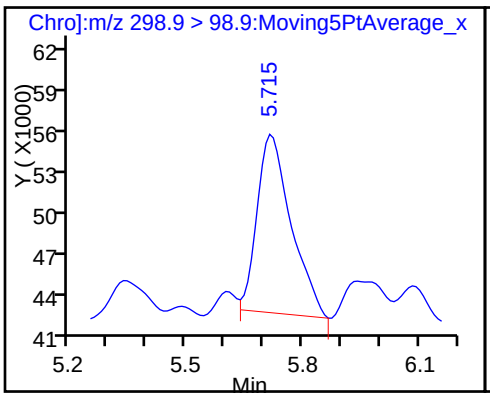
4 Perfluorobutane Sulfonate



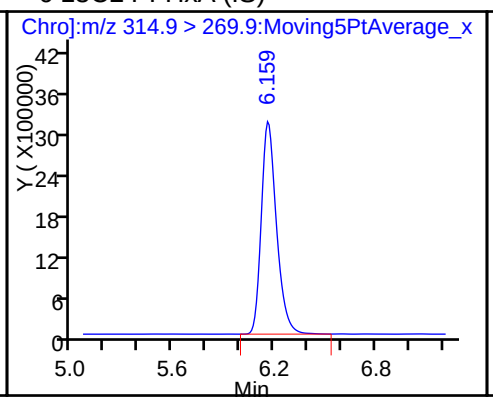
5 Perfluorobutanesulfonic acid



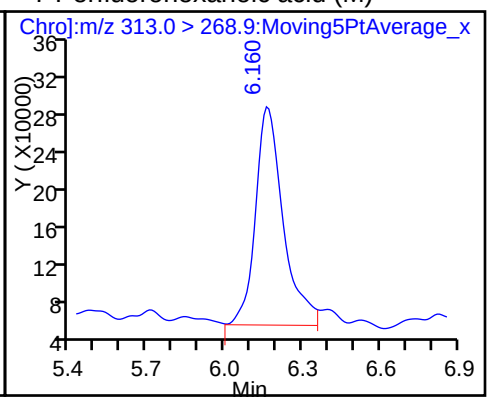
5 Perfluorobutanesulfonic acid



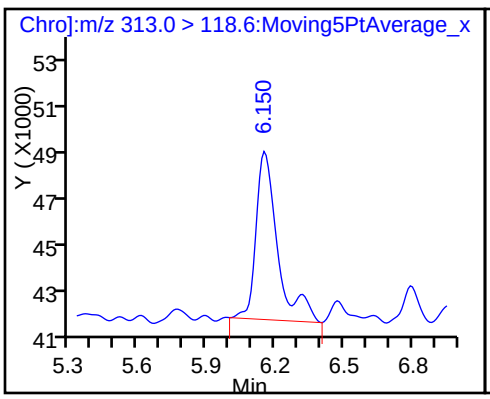
* 6 13C2 PFHxA (IS)



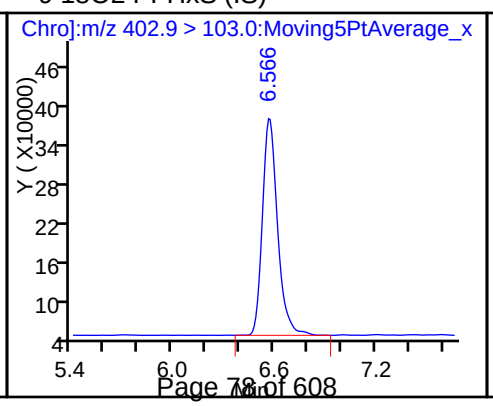
7 Perfluorohexanoic acid (M)



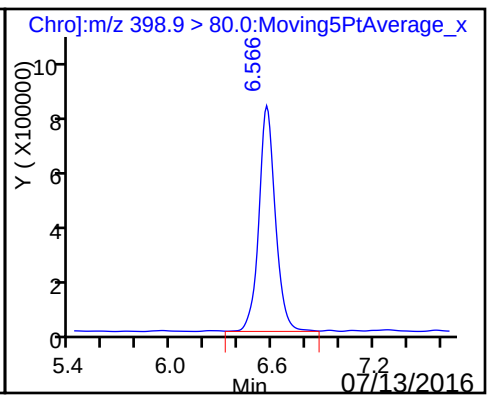
7 Perfluorohexanoic acid



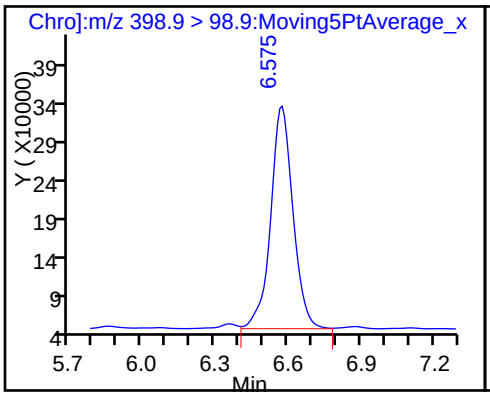
* 9 18O2 PFHxS (IS)



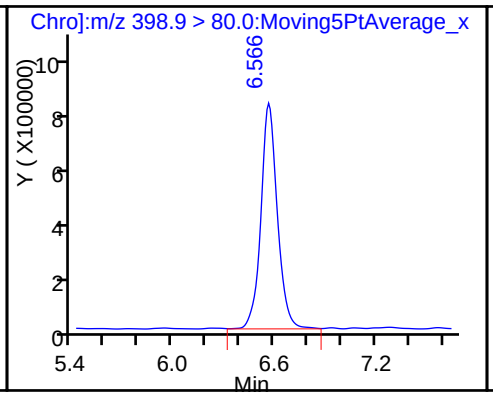
11 Perfluorohexanesulfonic acid



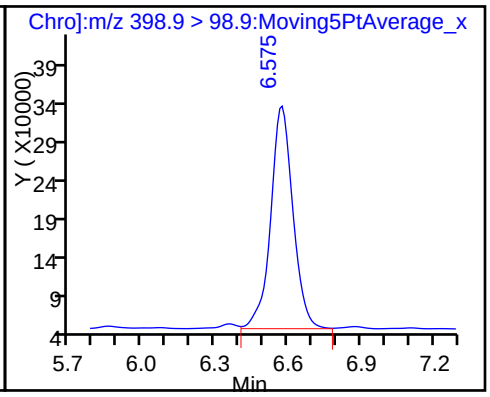
11 Perfluorohexanesulfonic acid



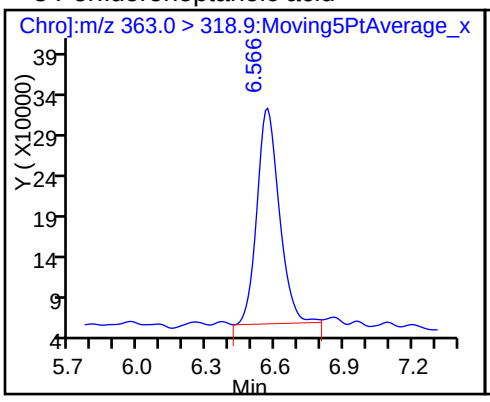
10 Perfluorohexane Sulfonate



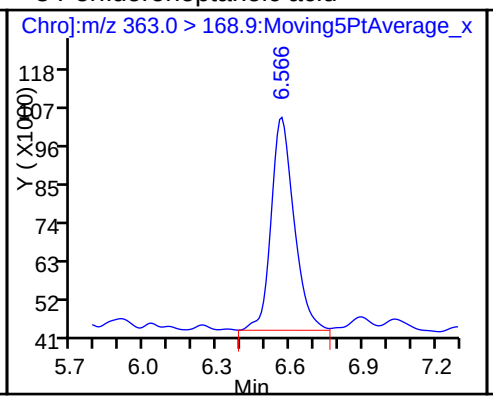
10 Perfluorohexane Sulfonate



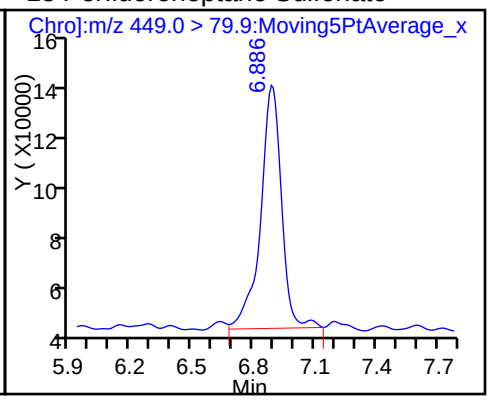
8 Perfluoroheptanoic acid



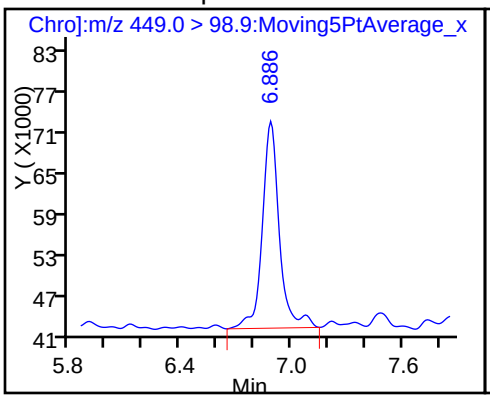
8 Perfluoroheptanoic acid



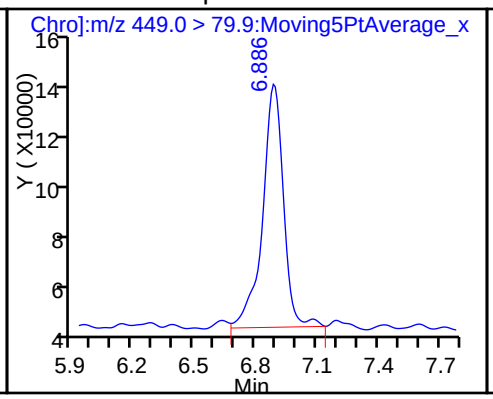
13 Perfluoroheptane Sulfonate



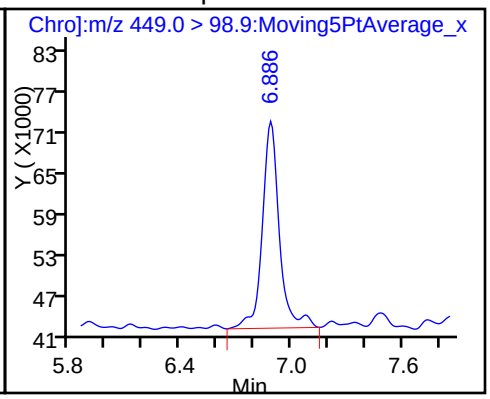
13 Perfluoroheptane Sulfonate



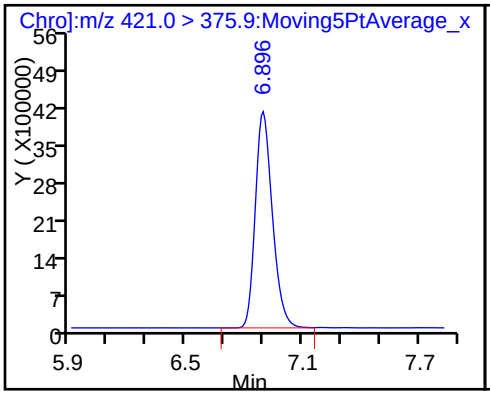
12 Perfluoroheptanesulfonic Acid



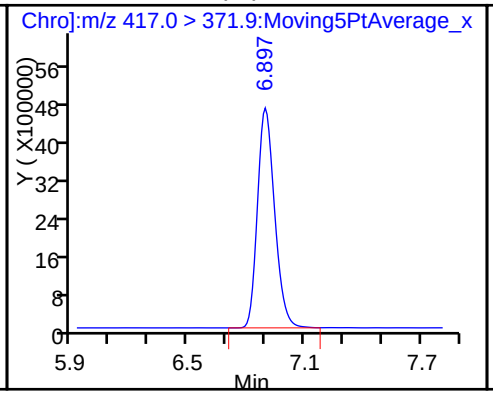
12 Perfluoroheptanesulfonic Acid



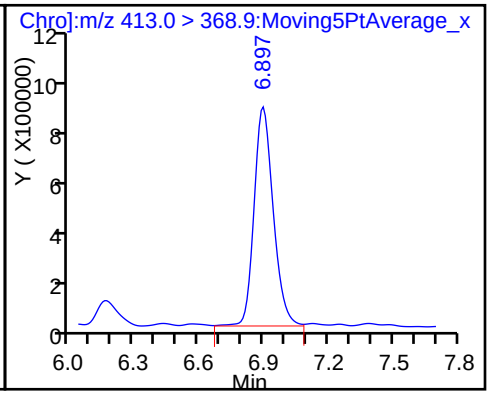
$ 14 13C8 PFOA



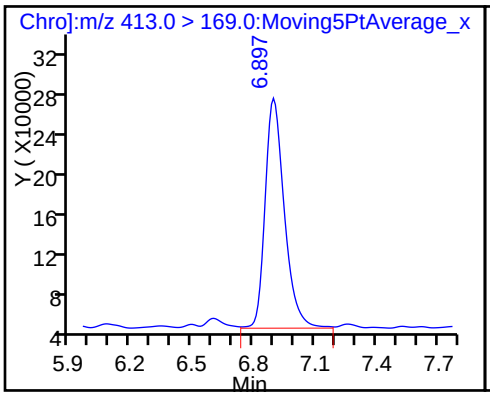
* 15 13C4 PFOA (IS)



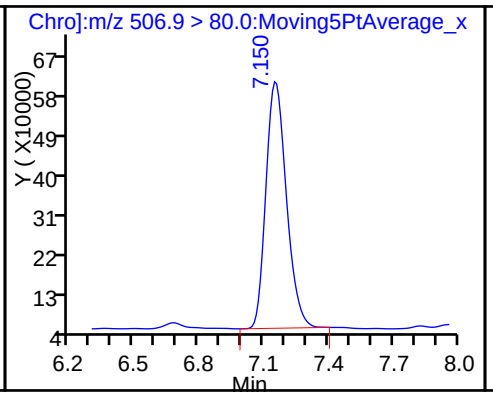
16 Perfluorooctanoic acid



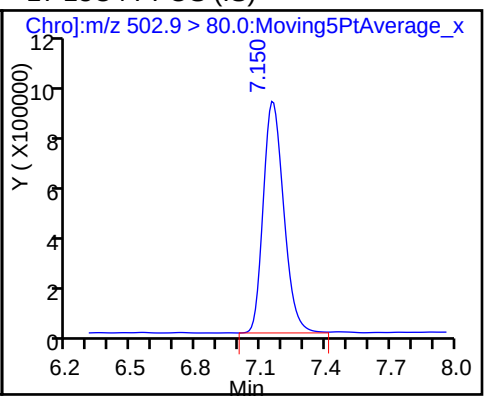
16 Perfluorooctanoic acid



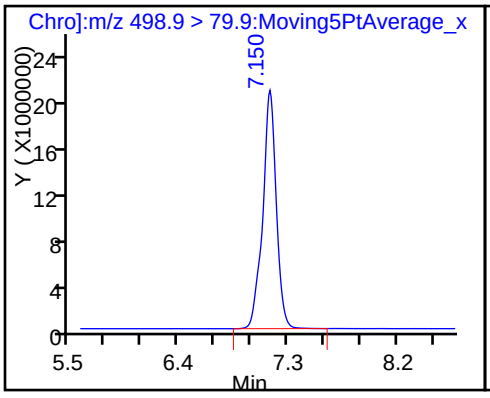
$ 18 13C8 PFOS



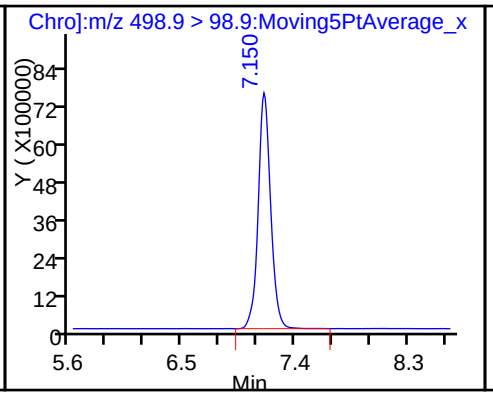
* 17 13C4 PFOS (IS)



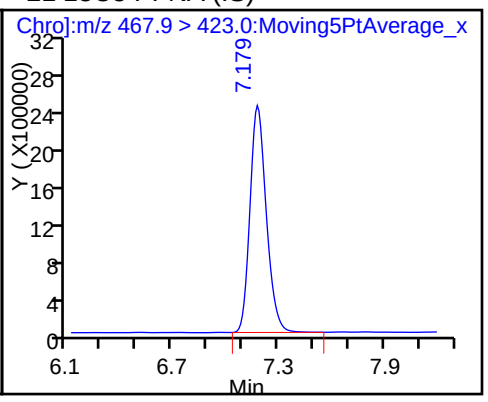
19 Perfluorooctane sulfonic acid



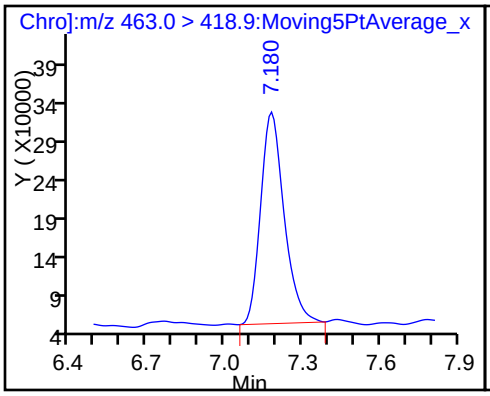
19 Perfluorooctane sulfonic acid



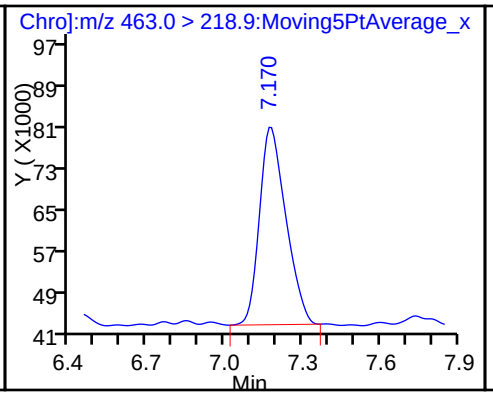
* 21 13C5 PFNA (IS)



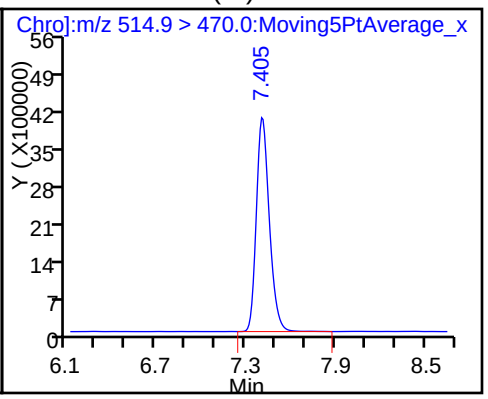
20 Perfluorononanoic acid



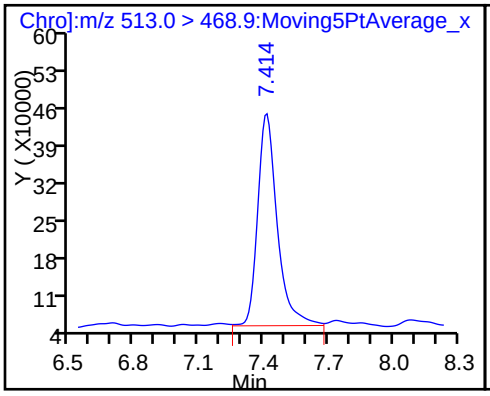
20 Perfluorononanoic acid



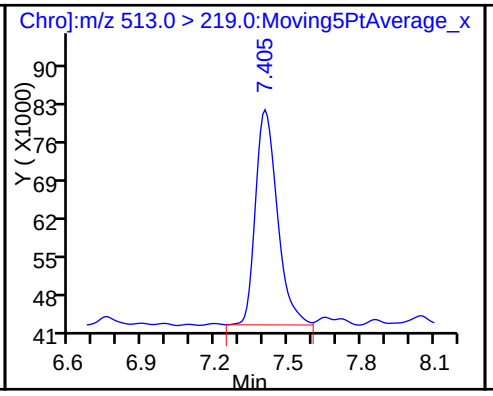
* 22 13C2 PFDA (IS)



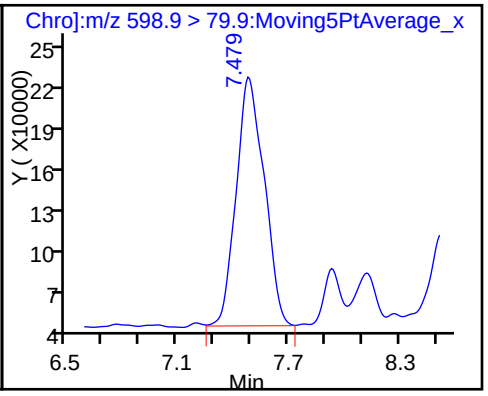
23 Perfluorodecanoic acid



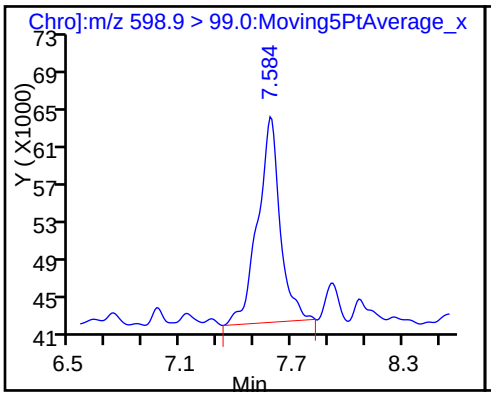
23 Perfluorodecanoic acid



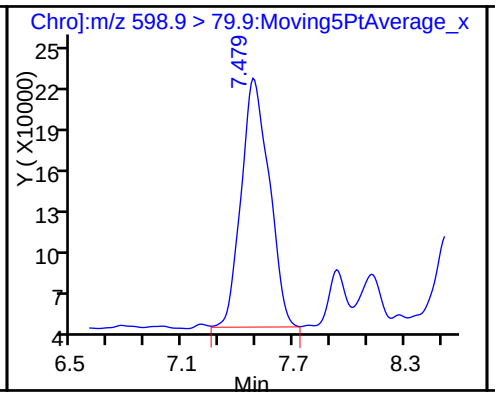
25 Perfluorodecane Sulfonate



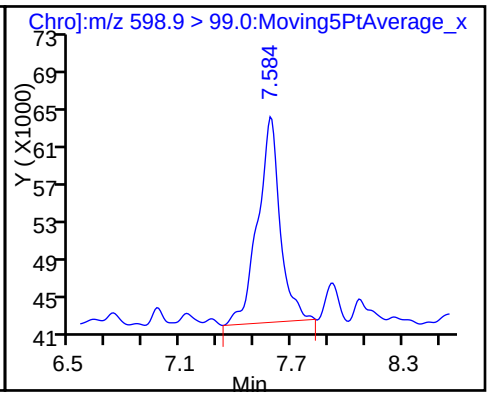
25 Perfluorodecane Sulfonate



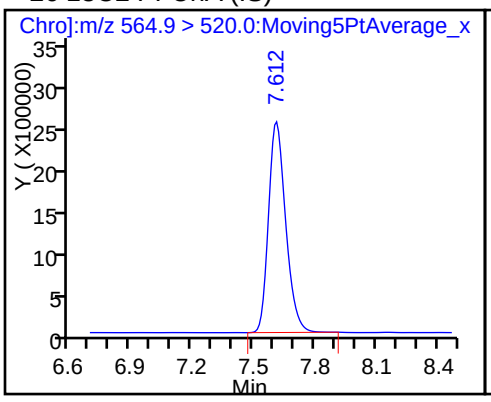
24 Perfluorodecane Sulfonic acid



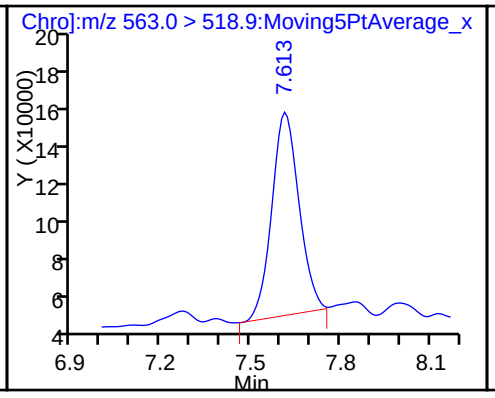
24 Perfluorodecane Sulfonic acid



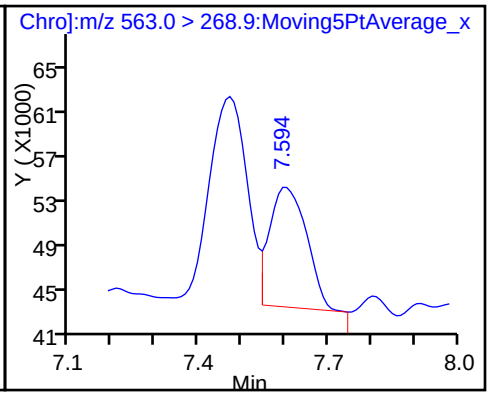
* 26 13C2 PFUnA (IS)



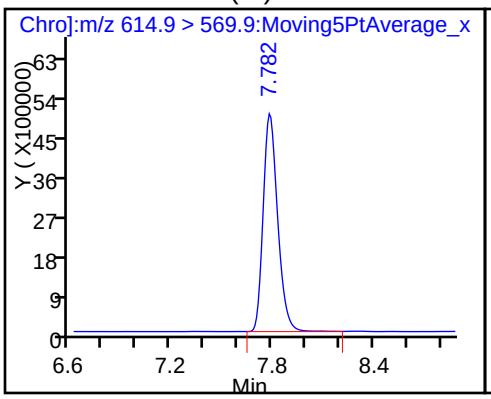
27 Perfluoroundecanoic acid



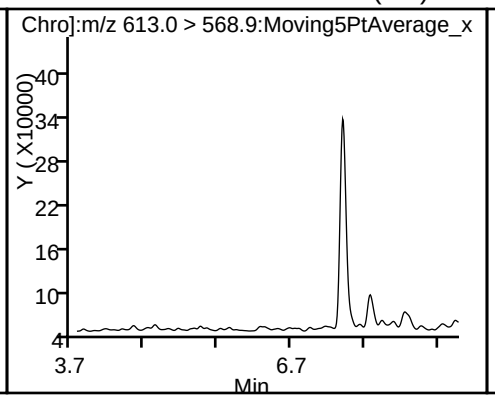
27 Perfluoroundecanoic acid



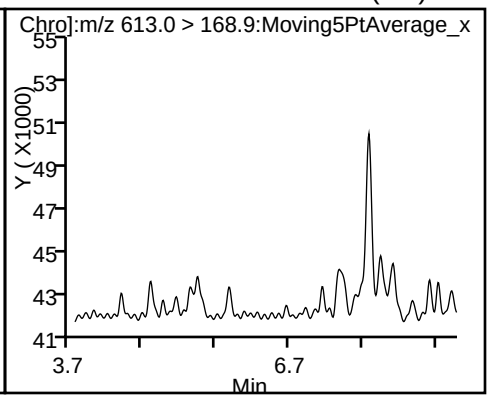
* 28 13C2 PFDoA (IS)



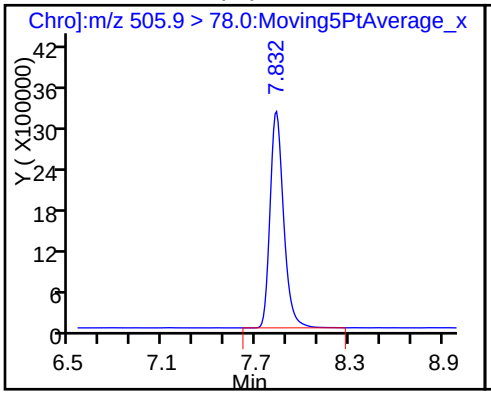
29 Perfluorododecanoic acid (ND)



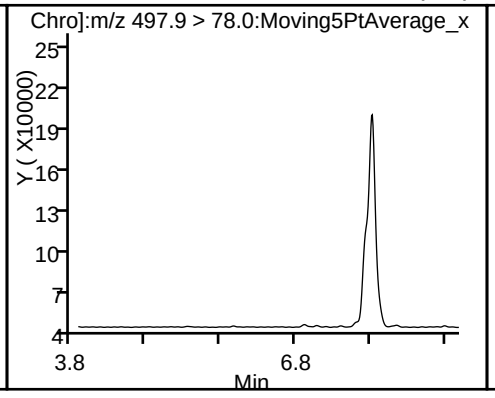
29 Perfluorododecanoic acid (ND)



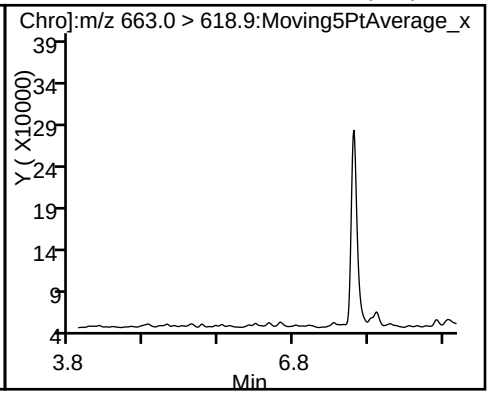
* 31 13C8 FOSA (IS)



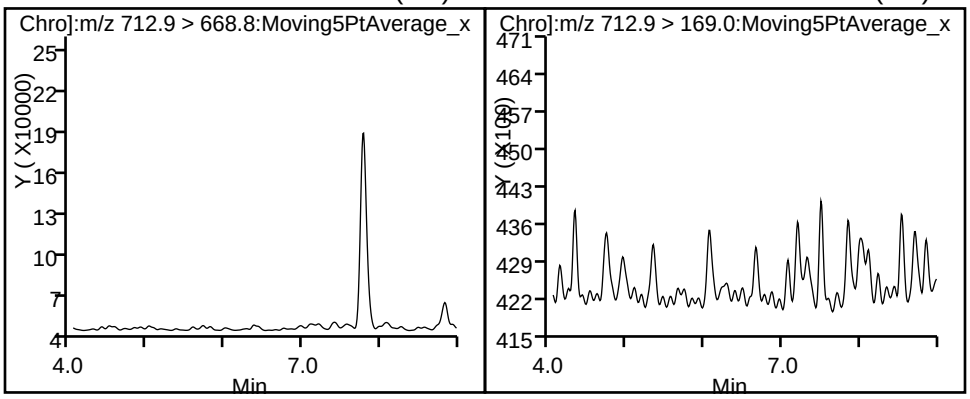
32 Perfluorooctane Sulfonamide (ND)



30 Perfluorotridecanoic acid (ND)



33 Perfluorotetradecanoic acid (ND) 33 Perfluorotetradecanoic acid (ND)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB001-0.5 DL | Lab Sample ID: 280-85171-2 DL

Matrix: Solid | Lab File ID: PC516G08009.d

Analysis Method: DV-LC-0012 | Date Collected: 06/29/2016 16:55

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.61(g) | Date Analyzed: 07/08/2016 13:13

Con. Extract Vol.: 20(mL) | Dilution Factor: 5

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 33.2 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 333083 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	592	D	5.64	0.99

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	110	D	57-153
STL01054	13C8 PFOS	104	D	70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08009.d
Lims ID: 280-85171-A-2-A Lab Sample ID: 280-85171-2
Client ID: SB001-0.5
Sample Type: Client
Inject. Date: 08-Jul-2016 13:13:28 ALS Bottle#: 0 Worklist Smp#: 4
Injection Vol: 25.0 ul Dil. Factor: 5.0000
Sample Info: 280-85171-A-2-A, Sample
Misc. Info.: 5x
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 11-Jul-2016 11:14:47 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK031

First Level Reviewer: fiedlerh Date: 11-Jul-2016 10:47:15

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.304	4.219	0.085		6274144	2.00			
2 Perfluorobutyric acid									
213.0 > 168.9		4.229				ND			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.289	5.242	0.047	0.903	1007501	0.3738			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.355				ND			
298.9 > 98.9		5.355							
5 Perfluorobutanesulfonic acid									
298.9 > 79.9		5.355				ND			
298.9 > 98.9		5.355							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.856	5.837	0.019		4299888	2.00			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.857	5.828	0.029	1.000	365057	0.1581			
313.0 > 118.6	5.866	5.828	0.038	1.002	11760		31.04(34.05-63.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.291	6.272	0.019		383758	1.89			
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.282	6.272	0.010	0.999	1078850	1.30			
398.9 > 98.9	6.282	6.272	0.010	0.999	379215		2.84(1.85-1.85)		
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.282	6.272	0.010	0.999	1078850	1.30			R
398.9 > 98.9	6.282	6.272	0.010	0.999	379215		2.84(1.30-2.41)		
8 Perfluoroheptanoic acid									R
363.0 > 318.9	6.292	6.273	0.019	0.949	332313	0.0934			R
363.0 > 168.9	6.282	6.273	0.009	0.947	107519		3.09(3.35-6.23)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9		6.602				ND			
449.0 > 98.9		6.602							
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9		6.602				ND			
449.0 > 98.9		6.602							
$ 14 13C8 PFOA									
421.0 > 375.9	6.631	6.612	0.019	1.000	5384170	2.17			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.631	6.612	0.019		6041589	2.00			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.632	6.613	0.019	1.000	1123386	0.2878			
413.0 > 169.0	6.622	6.613	0.009	0.999	372669		3.01(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.903	6.884	0.019	1.000	1047969	1.92			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.904	6.885	0.019	1.000	43036835	42.0			R
498.9 > 98.9	6.914	6.885	0.029	1.001	13925092		3.09(1.31-2.43)		
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.904	6.885	0.019		1682562	1.91			
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.933	6.905	0.028		4595026	2.00			
20 Perfluorononanoic acid									
463.0 > 418.9	6.933	6.905	0.028	1.000	684847	0.2232			
463.0 > 218.9	6.933	6.905	0.028	1.000	100921		6.79(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.187	7.158	0.029		5138419	2.00			
23 Perfluorodecanoic acid									RM
513.0 > 468.9	7.187	7.159	0.028	1.000	577389	0.1890			RM
513.0 > 219.0	7.197	7.159	0.038	1.001	85044		6.79(10.49-19.48)		
25 Perfluorodecane Sulfonate									R
598.9 > 79.9	7.280	7.347	-0.067	1.055	374001	0.3060			R
598.9 > 99.0	7.318	7.347	-0.029	1.060	6885		54.32(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.280	7.347	-0.067	1.055	374001	0.3060			
598.9 > 99.0	7.318	7.347	-0.029	1.060	6885		54.32(2.84-2.84)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.404	7.376	0.028		3368239	2.00			
27 Perfluoroundecanoic acid									
563.0 > 518.9		7.376				ND			
563.0 > 268.9		7.376							
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.592	7.555	0.038		6712640	2.00			
29 Perfluorododecanoic acid									
613.0 > 568.9		7.555				ND			
613.0 > 168.9		7.555							
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.605	7.576	0.029		4833784	2.00			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									M
497.9 > 78.0	7.605	7.577	0.028	1.000	325176	0.1145			M
30 Perfluorotridecanoic acid									
663.0 > 618.9		7.715				ND			
33 Perfluorotetradecanoic acid									
712.9 > 668.8		7.857				ND			
712.9 > 169.0		7.857							

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

R - Failed Signal Ratio Test

Review Flags

M - Manually Integrated

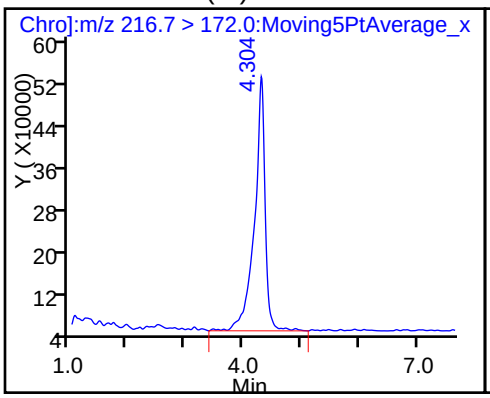
Report Date: 11-Jul-2016 11:15:04 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

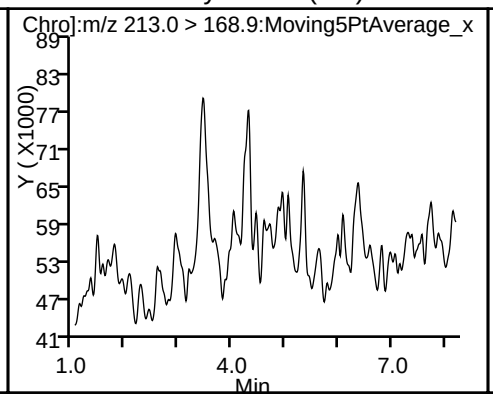
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08009.d

Injection Date:	08-Jul-2016 13:13:28	Instrument ID:	LC_LCMS5		
Lims ID:	280-85171-A-2-A	Lab Sample ID:	280-85171-2		
Client ID:	SB001-0.5				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	4
Injection Vol:	25.0 ul	Dil. Factor:	5.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

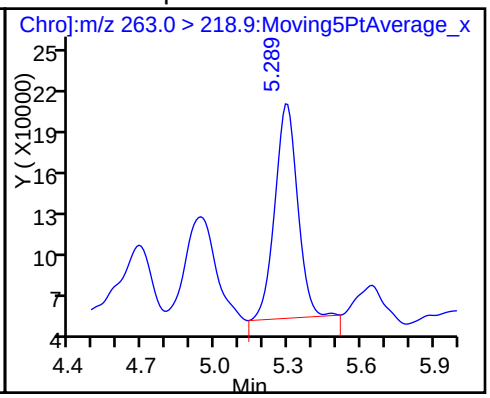
* 1 13C4 PFBA (IS)



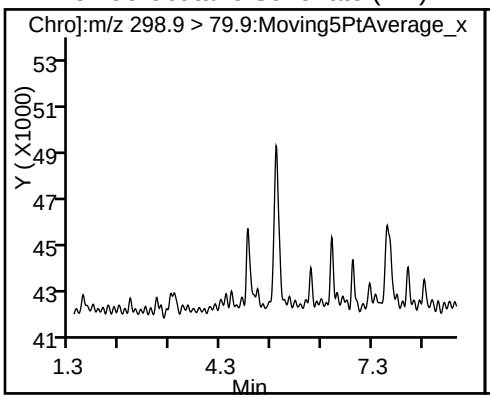
2 Perfluorobutyric acid (ND)



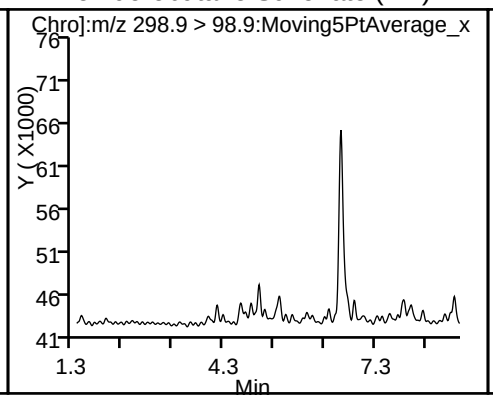
3 Perfluoropentanoic acid



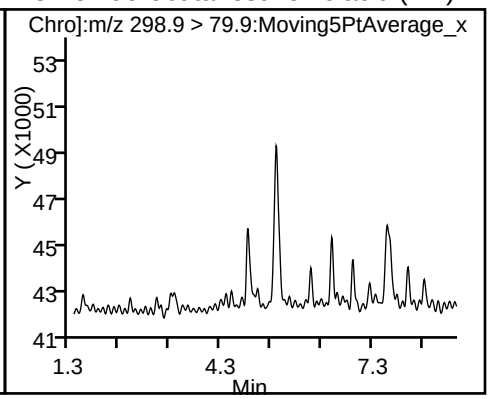
4 Perfluorobutane Sulfonate (ND)



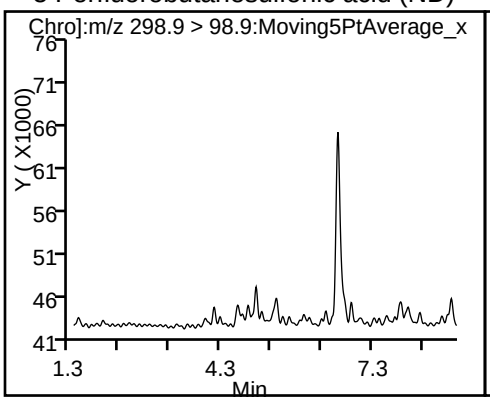
4 Perfluorobutane Sulfonate (ND)



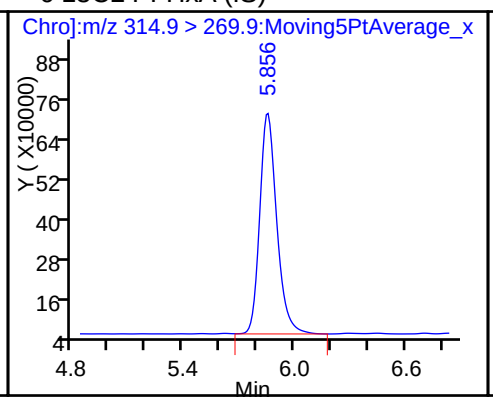
5 Perfluorobutanesulfonic acid (ND)



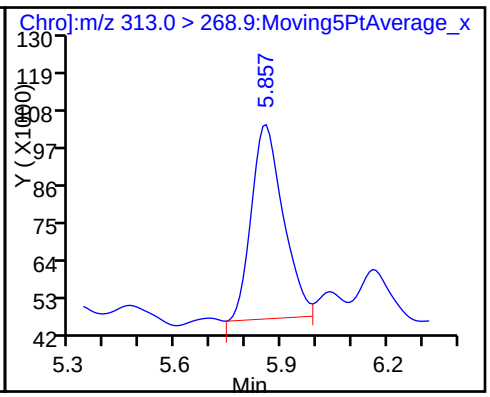
5 Perfluorobutanesulfonic acid (ND)



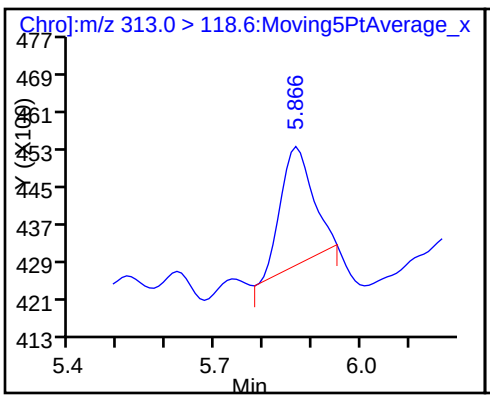
* 6 13C2 PFHxA (IS)



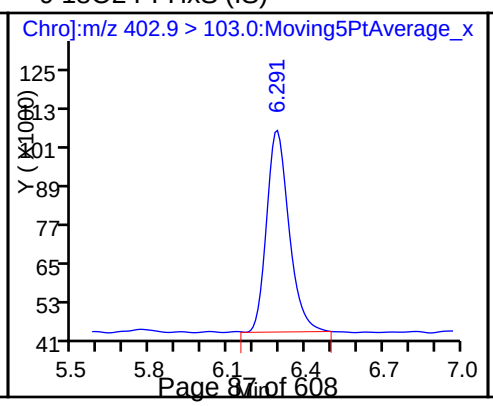
7 Perfluorohexanoic acid



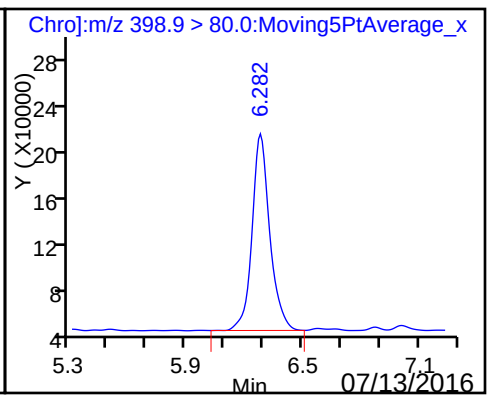
7 Perfluorohexanoic acid



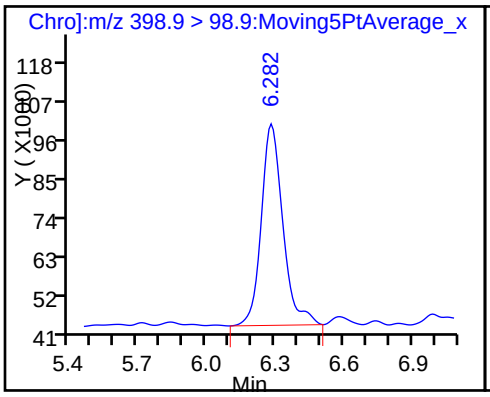
* 9 18O2 PFHxS (IS)



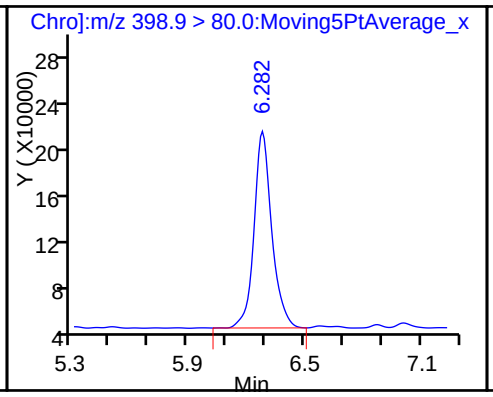
11 Perfluorohexanesulfonic acid



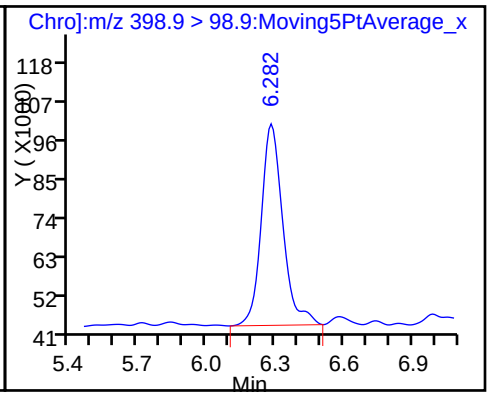
11 Perfluorohexanesulfonic acid



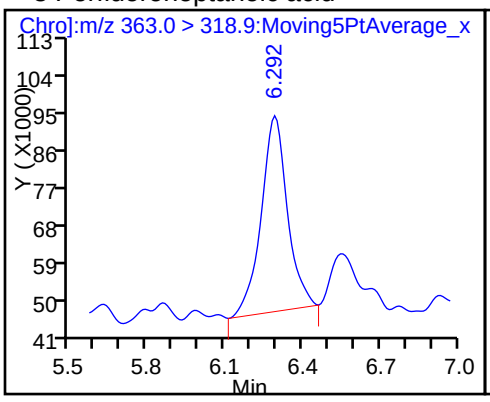
10 Perfluorohexane Sulfonate



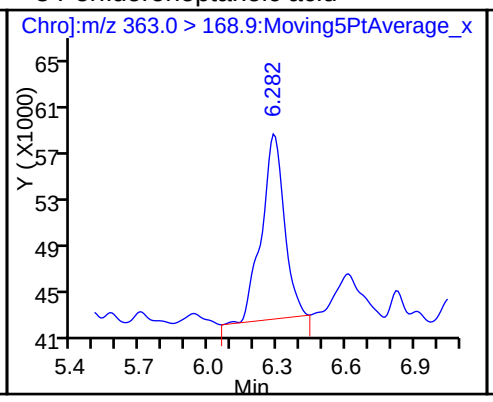
10 Perfluorohexane Sulfonate



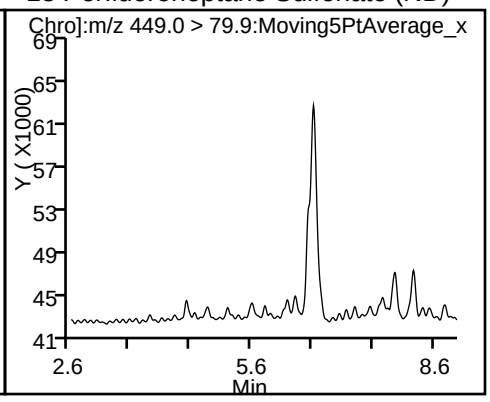
8 Perfluoroheptanoic acid



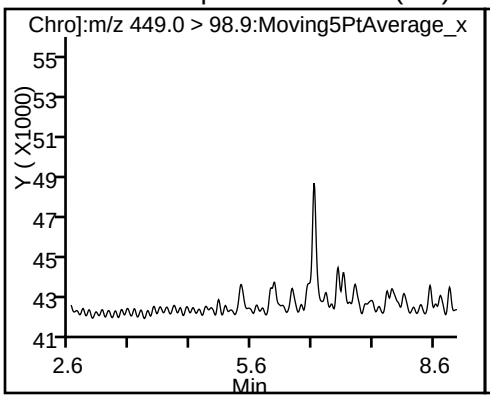
8 Perfluoroheptanoic acid



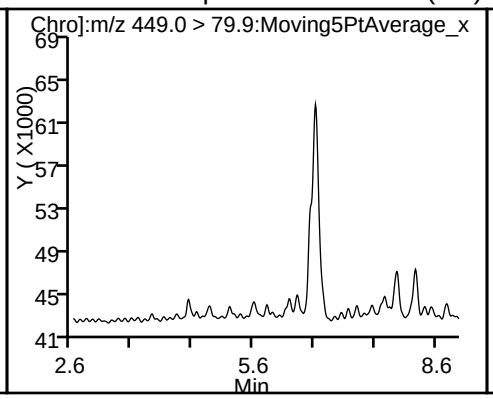
13 Perfluoroheptane Sulfonate (ND)



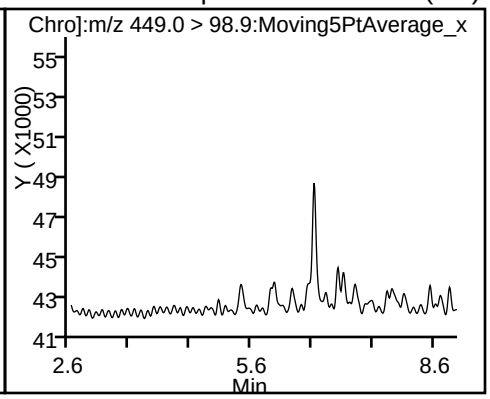
13 Perfluoroheptane Sulfonate (ND)



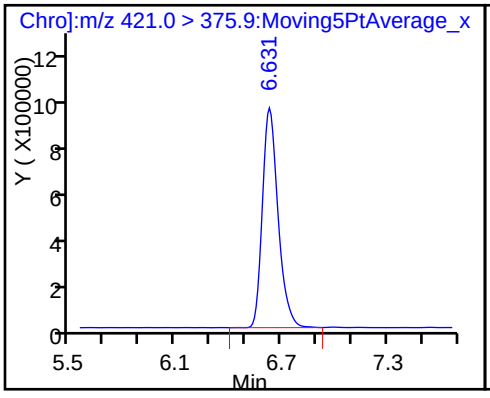
12 Perfluoroheptanesulfonic Acid (ND)



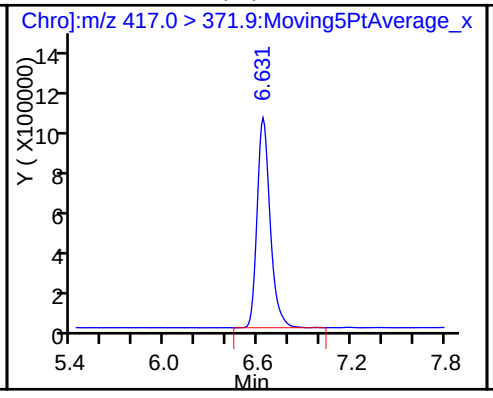
12 Perfluoroheptanesulfonic Acid (ND)



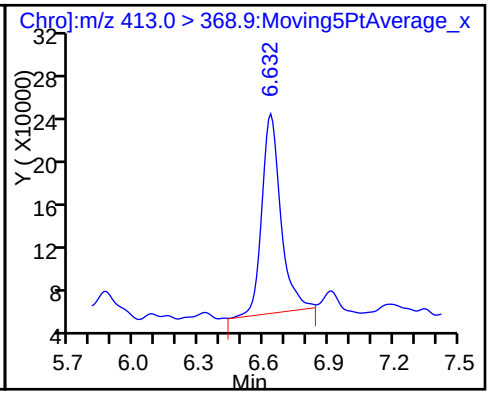
$ 14 13C8 PFOA



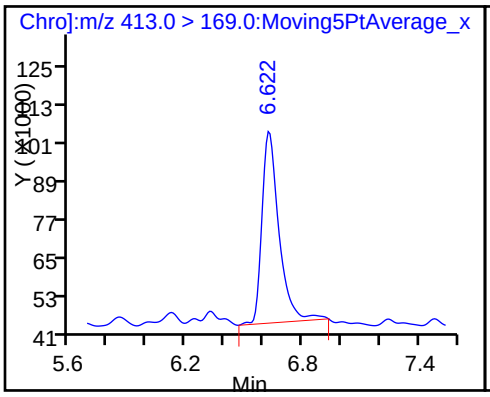
* 15 13C4 PFOA (IS)



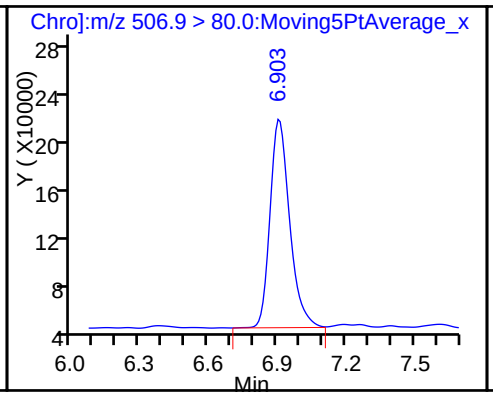
16 Perfluorooctanoic acid



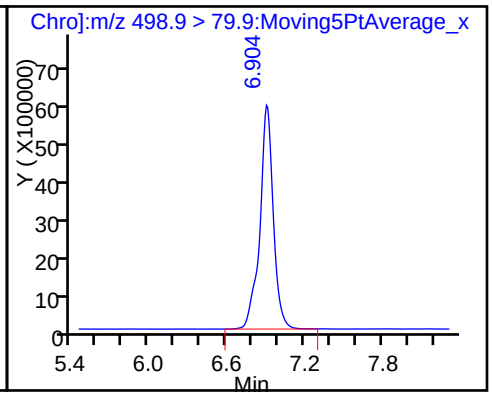
16 Perfluorooctanoic acid



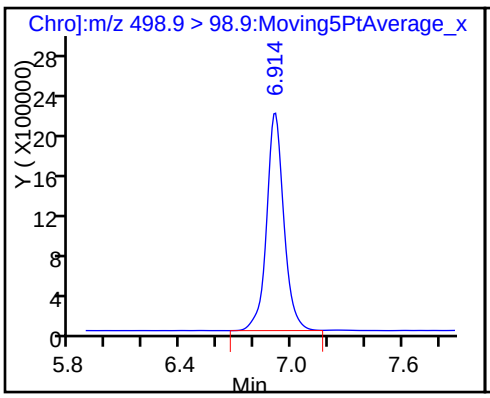
$ 18 13C8 PFOS



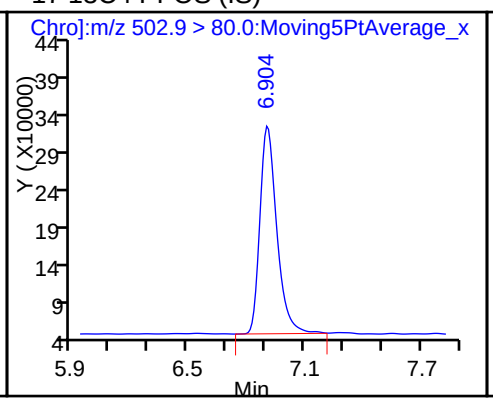
19 Perfluorooctane sulfonic acid



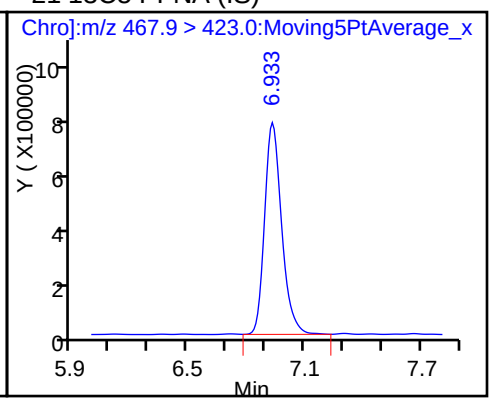
19 Perfluorooctane sulfonic acid



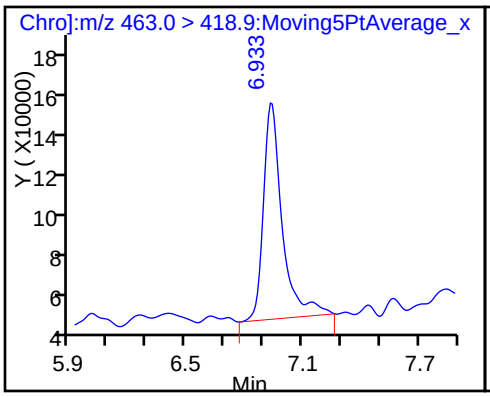
* 17 13C4 PFOS (IS)



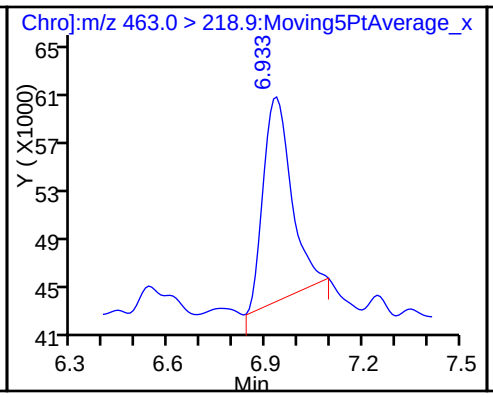
* 21 13C5 PFNA (IS)



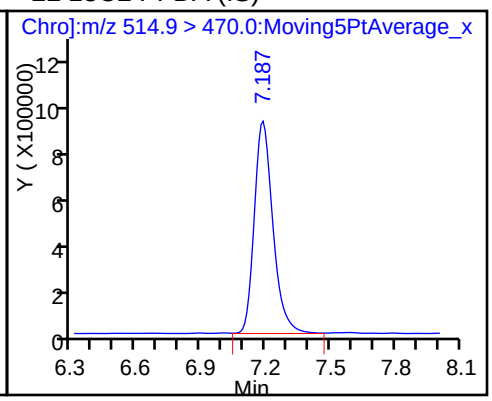
20 Perfluorononanoic acid



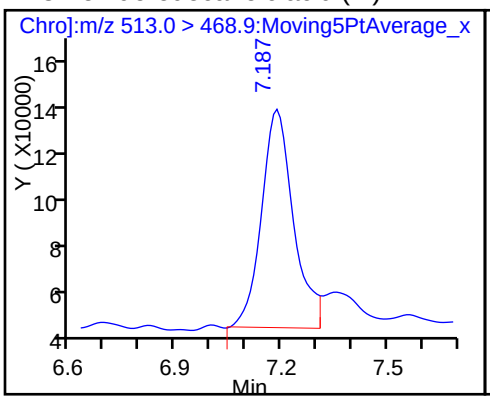
20 Perfluorononanoic acid



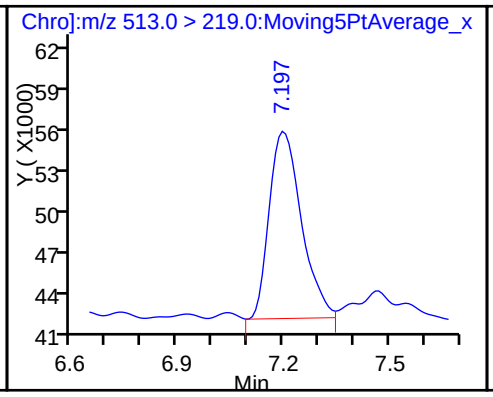
* 22 13C2 PFDA (IS)



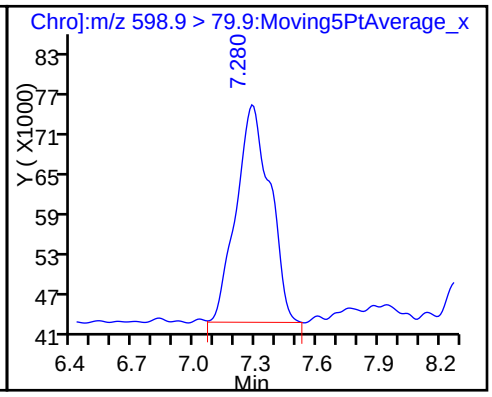
23 Perfluorodecanoic acid (M)



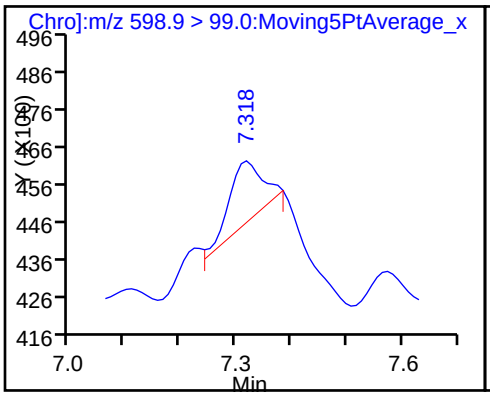
23 Perfluorodecanoic acid



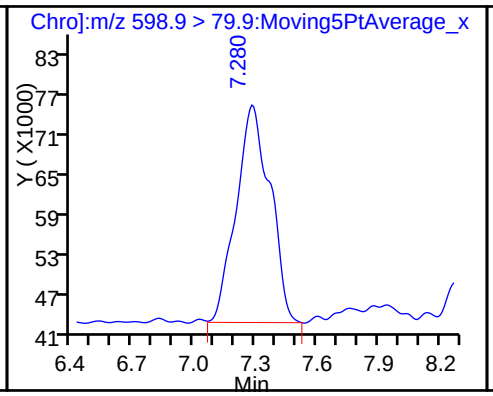
25 Perfluorodecane Sulfonate



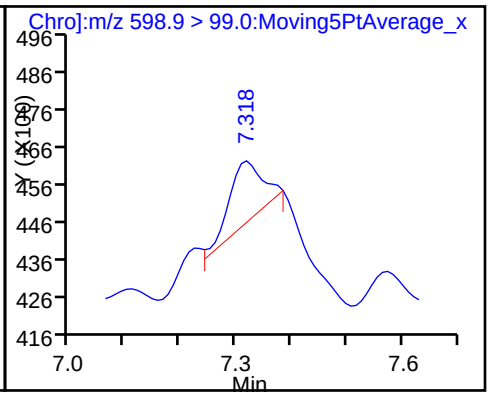
25 Perfluorodecane Sulfonate



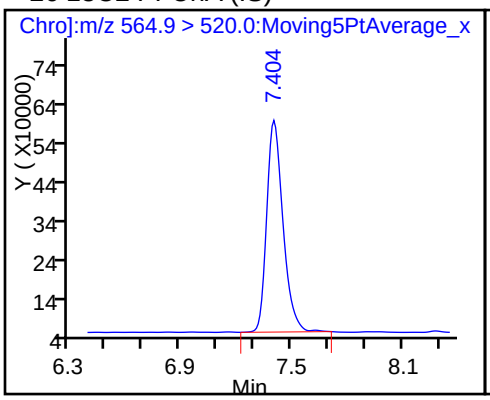
24 Perfluorodecane Sulfonic acid



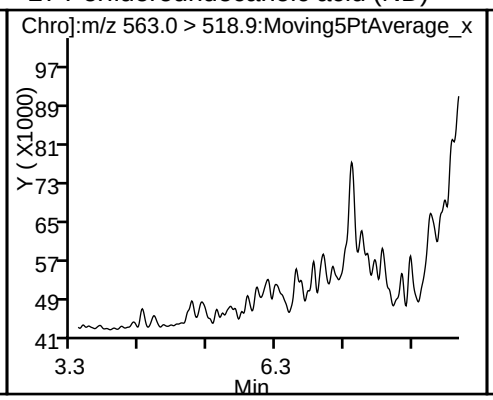
24 Perfluorodecane Sulfonic acid



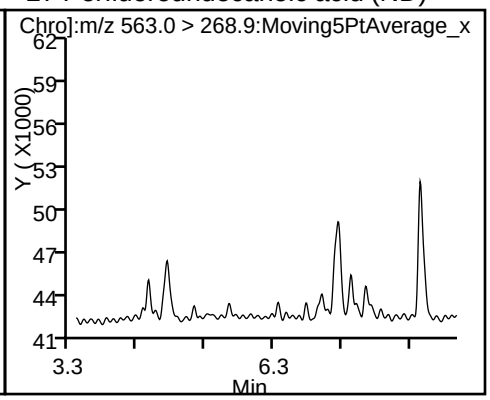
* 26 13C2 PFUnA (IS)



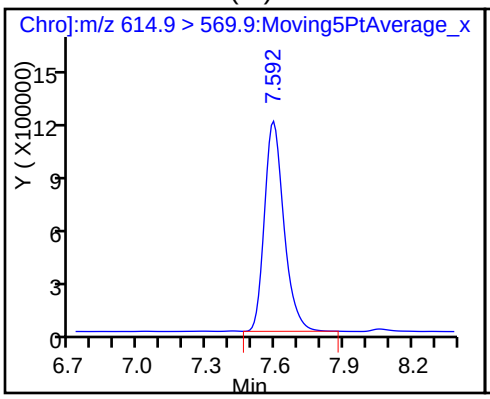
27 Perfluoroundecanoic acid (ND)



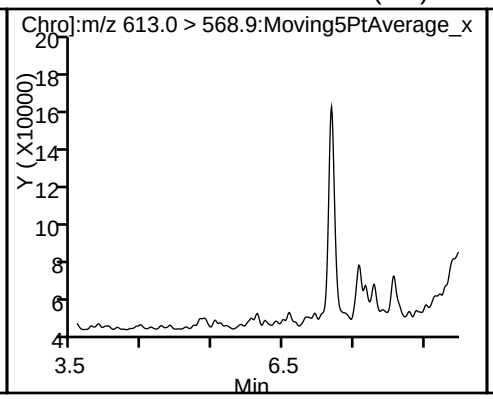
27 Perfluoroundecanoic acid (ND)



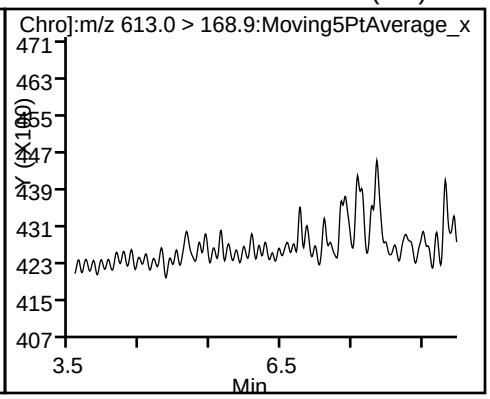
* 28 13C2 PFDoA (IS)



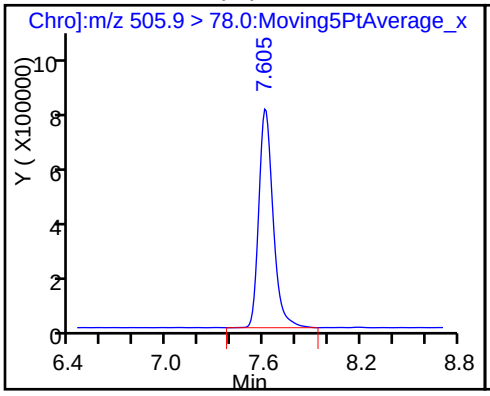
29 Perfluorododecanoic acid (ND)



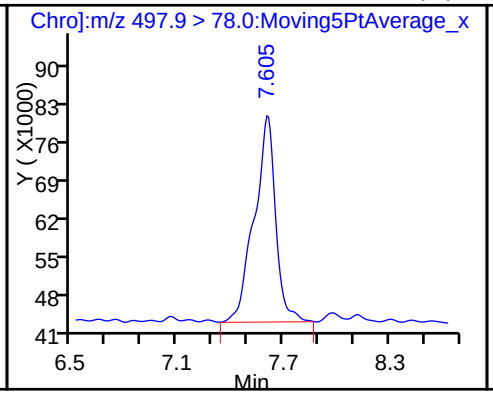
29 Perfluorododecanoic acid (ND)



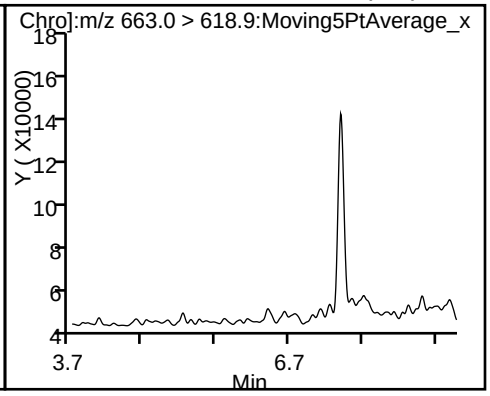
* 31 13C8 FOSA (IS)



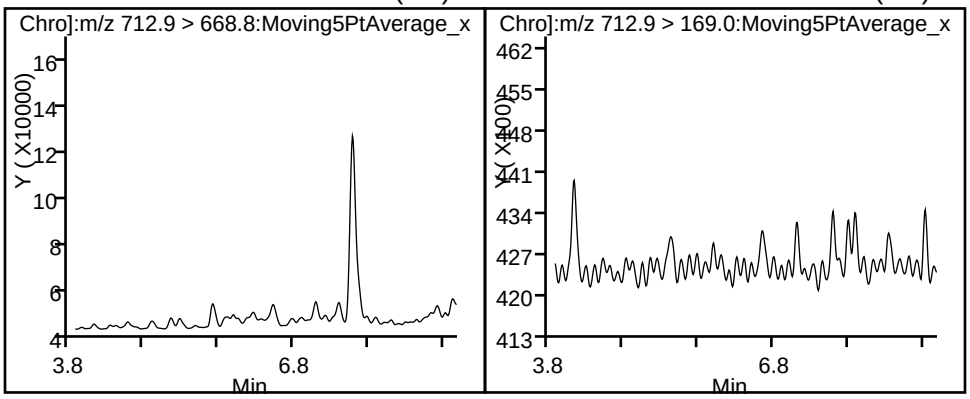
32 Perfluorooctane Sulfonamide (M)



30 Perfluorotridecanoic acid (ND)



33 Perfluorotetradecanoic acid (ND) 33 Perfluorotetradecanoic acid (ND)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB001-13.0 | Lab Sample ID: 280-85171-3

Matrix: Solid | Lab File ID: PC516G07046.d

Analysis Method: DV-LC-0012 | Date Collected: 06/29/2016 17:00

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.25(g) | Date Analyzed: 07/07/2016 15:29

Con. Extract Vol.: 20(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 5.1 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 332793 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.14	U	0.82	0.14
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.12	U	0.82	0.12
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.29	U	0.82	0.29
375-95-1	Perfluorononanoic acid (PFNA)	0.23	U	0.82	0.23
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.14	U	0.82	0.14
335-67-1	Perfluorooctanoic acid (PFOA)	0.24	U	0.82	0.24

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	105		57-153
STL01054	13C8 PFOS	106		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07046.d
Lims ID: 280-85171-A-3-A Lab Sample ID: 280-85171-3
Client ID: SB001-13.0
Sample Type: Client
Inject. Date: 07-Jul-2016 15:29:13 ALS Bottle#: 0 Worklist Smp#: 11
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85171-A-3-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 08-Jul-2016 09:15:01 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK002

First Level Reviewer: fiedlerh Date: 08-Jul-2016 08:10:34

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.617	4.569	0.048		27952326	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.705				ND			
298.9 > 98.9		5.705							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	6.122	6.141	-0.019		21394270	10.0			
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.547	6.537	0.010		2639922	9.46			
10 Perfluorohexane Sulfonate									
398.9 > 80.0		6.538				ND			
398.9 > 98.9		6.538							
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.538				ND			
363.0 > 168.9		6.538							
$ 14 13C8 PFOA									
421.0 > 375.9	6.877	6.868	0.009	1.000	28057535	10.3			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.878	6.868	0.010		33634293	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9		6.868				ND			
413.0 > 169.0		6.868							
$ 18 13C8 PFOS									
506.9 > 80.0	7.131	7.131	0.0	1.000	6034645	9.80			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	7.131	7.131	0.0		9629394	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9		7.131				ND			
498.9 > 98.9		7.131							

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 21 13C5 PFNA (IS)									
467.9 > 423.0	7.160	7.160	0.0		25589175	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9		7.151				ND			
463.0 > 218.9		7.151							
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.386	7.386	0.0		27541367	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.584	7.584	0.0		17892007	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.753	7.753	0.0		36807032	10.0			
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.804	7.870	-0.066		27978843	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

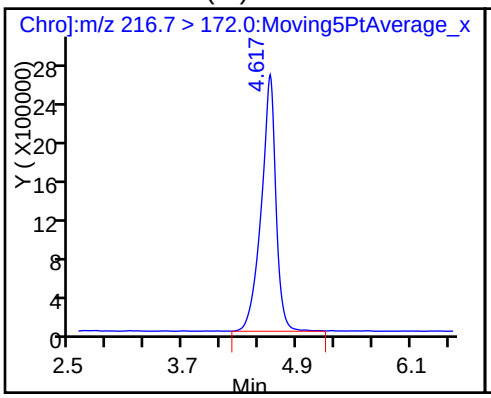
Report Date: 08-Jul-2016 09:15:45 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

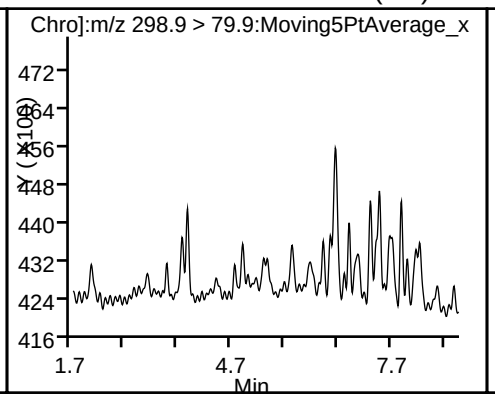
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07046.d

Injection Date:	07-Jul-2016 15:29:13	Instrument ID:	LC_LCMS5		
Lims ID:	280-85171-A-3-A	Lab Sample ID:	280-85171-3		
Client ID:	SB001-13.0				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	11
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

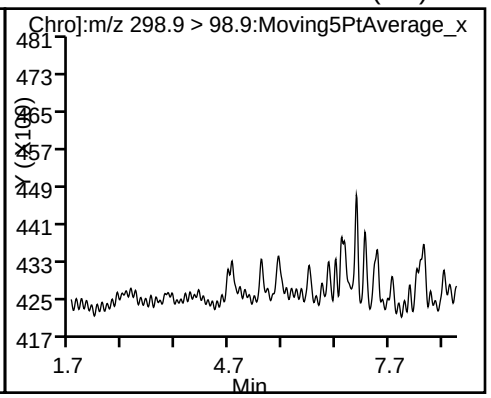
* 1 13C4 PFBA (IS)



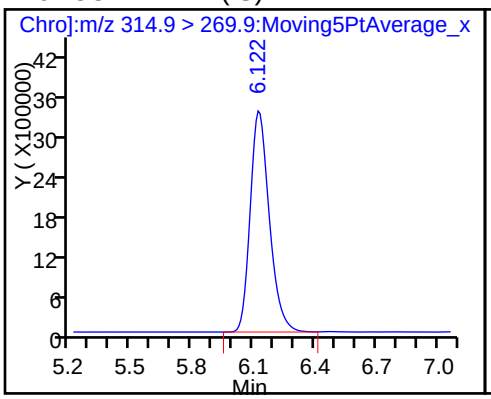
4 Perfluorobutane Sulfonate (ND)



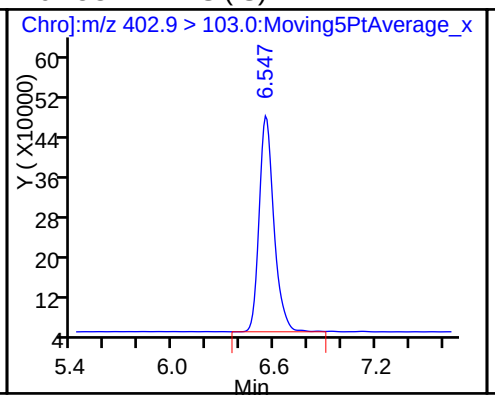
4 Perfluorobutane Sulfonate (ND)



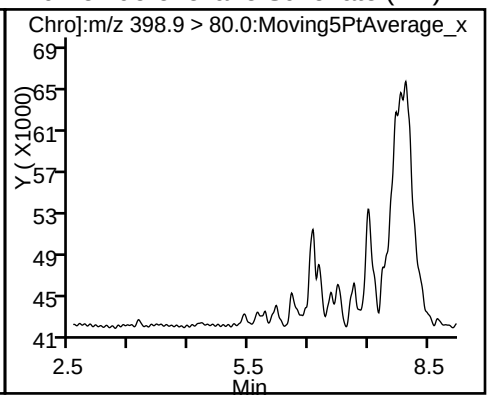
* 6 13C2 PFHxA (IS)



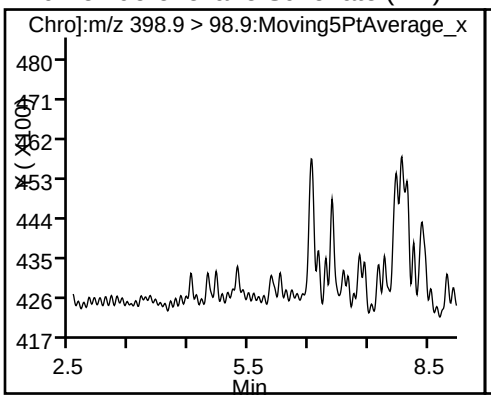
* 9 18O2 PFHxS (IS)



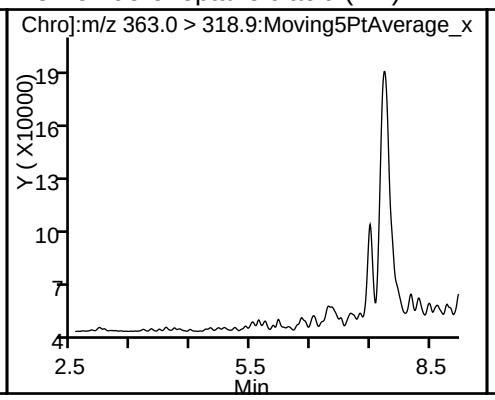
10 Perfluorohexane Sulfonate (ND)



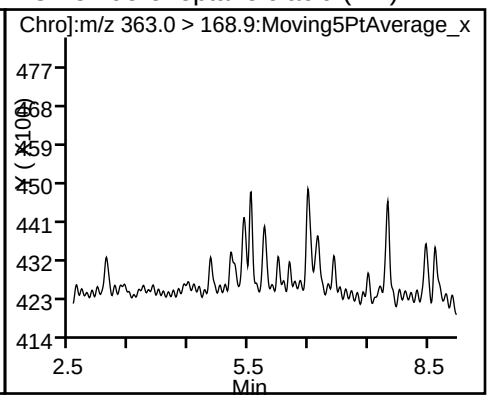
10 Perfluorohexane Sulfonate (ND)



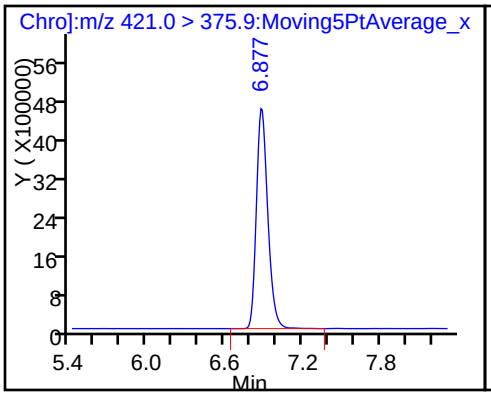
8 Perfluoroheptanoic acid (ND)



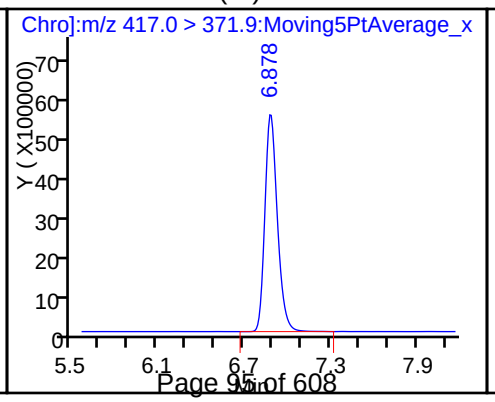
8 Perfluoroheptanoic acid (ND)



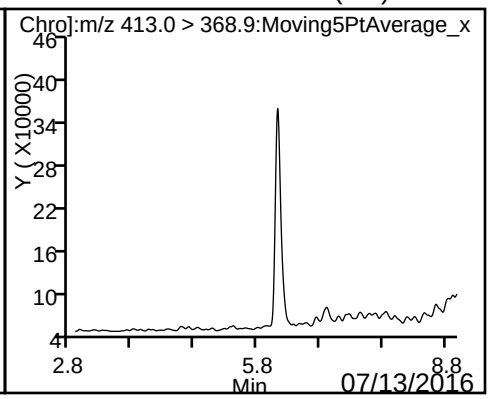
$ 14 13C8 PFOA



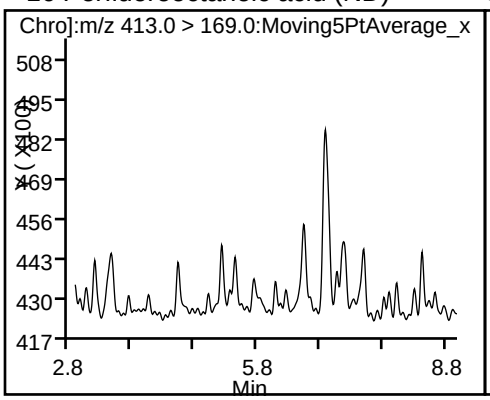
* 15 13C4 PFOA (IS)



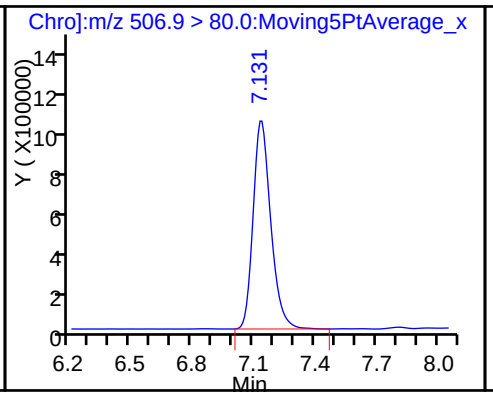
16 Perfluorooctanoic acid (ND)



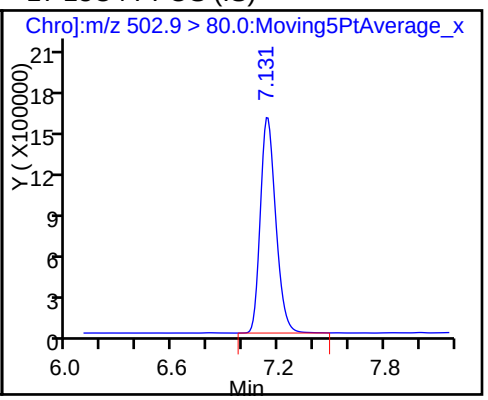
16 Perfluorooctanoic acid (ND)



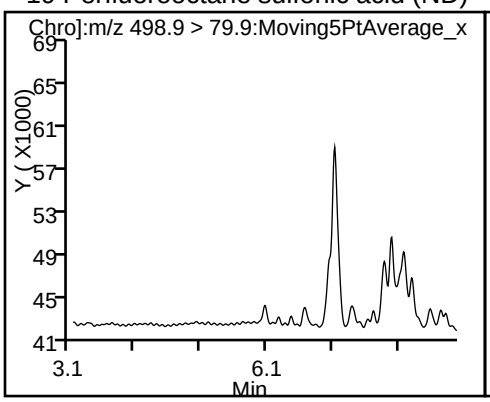
$ 18 13C8 PFOS



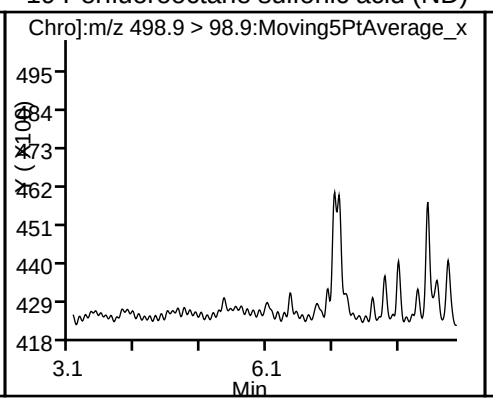
* 17 13C4 PFOS (IS)



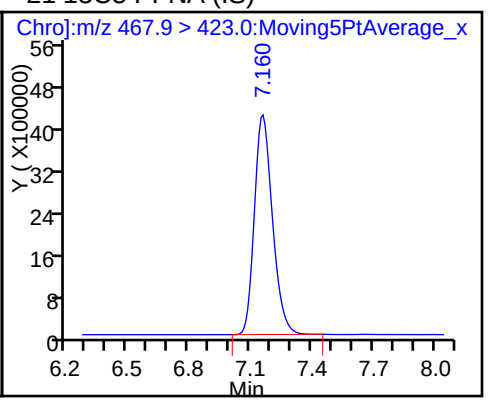
19 Perfluorooctane sulfonic acid (ND)



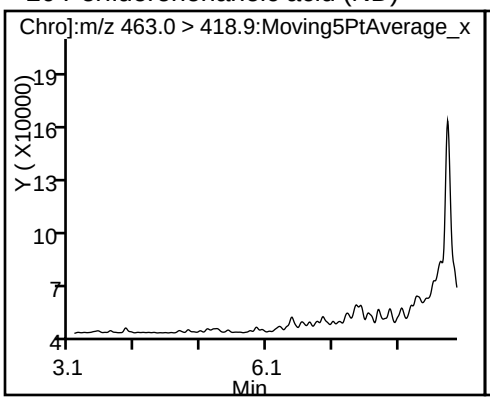
19 Perfluorooctane sulfonic acid (ND)



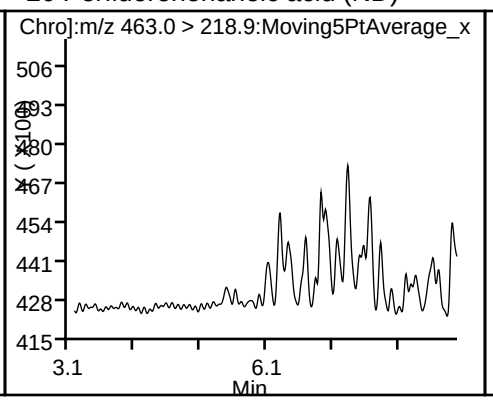
* 21 13C5 PFNA (IS)



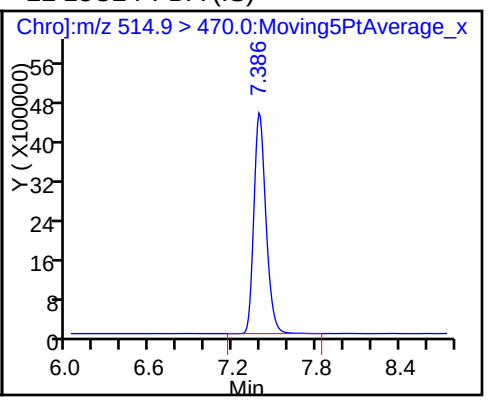
20 Perfluorononanoic acid (ND)



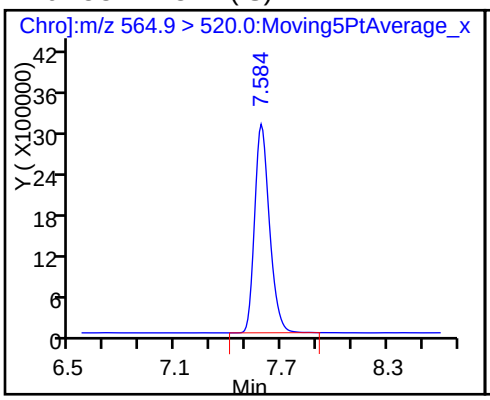
20 Perfluorononanoic acid (ND)



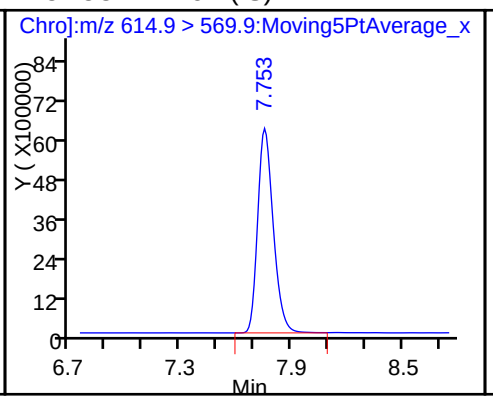
* 22 13C2 PFDA (IS)



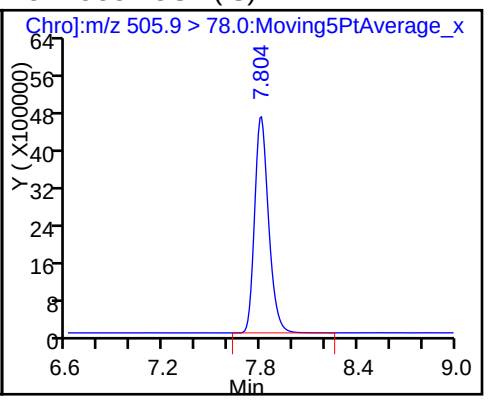
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB001-18.0 | Lab Sample ID: 280-85171-4

Matrix: Solid | Lab File ID: PC516G07047.d

Analysis Method: DV-LC-0012 | Date Collected: 06/29/2016 16:57

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.49(g) | Date Analyzed: 07/07/2016 15:41

Con. Extract Vol.: 20(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 7.7 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 332793 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.14	U	0.83	0.14
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.12	U	0.83	0.12
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.29	U	0.83	0.29
375-95-1	Perfluorononanoic acid (PFNA)	0.23	U	0.83	0.23
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.14	U	0.83	0.14
335-67-1	Perfluorooctanoic acid (PFOA)	0.24	U	0.83	0.24

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	108		57-153
STL01054	13C8 PFOS	102		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07047.d
Lims ID: 280-85171-A-4-A Lab Sample ID: 280-85171-4
Client ID: SB001-18.0
Sample Type: Client
Inject. Date: 07-Jul-2016 15:41:31 ALS Bottle#: 0 Worklist Smp#: 12
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85171-A-4-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 08-Jul-2016 09:15:01 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK002

First Level Reviewer: fiedlerh Date: 08-Jul-2016 08:10:51

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.645	4.569	0.076		26722697	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.705				ND			
298.9 > 98.9		5.705							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	6.159	6.141	0.018		20777646	10.0			
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.585	6.537	0.048		2713403	9.46			
10 Perfluorohexane Sulfonate									
398.9 > 80.0		6.538				ND			
398.9 > 98.9		6.538							
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.538				ND			
363.0 > 168.9		6.538							
$ 14 13C8 PFOA									
421.0 > 375.9	6.915	6.868	0.047	1.000	27832038	10.6			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.916	6.868	0.048		32460797	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9		6.868				ND			
413.0 > 169.0		6.868							
$ 18 13C8 PFOS									
506.9 > 80.0	7.169	7.131	0.038	1.000	5980403	9.44			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	7.169	7.131	0.038		9900790	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9		7.131				ND			
498.9 > 98.9		7.131							

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 21 13C5 PFNA (IS)									
467.9 > 423.0	7.189	7.160	0.029		26042467	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9		7.151				ND			
463.0 > 218.9		7.151							
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.424	7.386	0.038		28106216	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.622	7.584	0.038		16881948	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.782	7.753	0.029		35571362	10.0			
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.832	7.870	-0.038		28543702	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

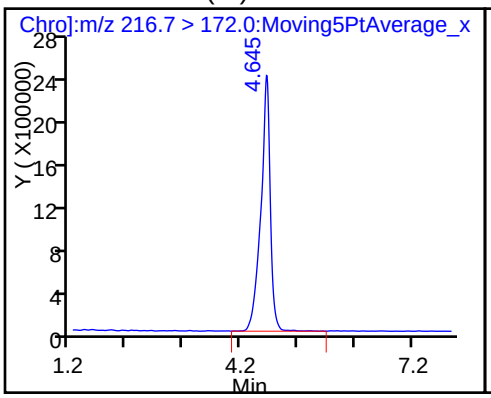
Report Date: 08-Jul-2016 09:15:50 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

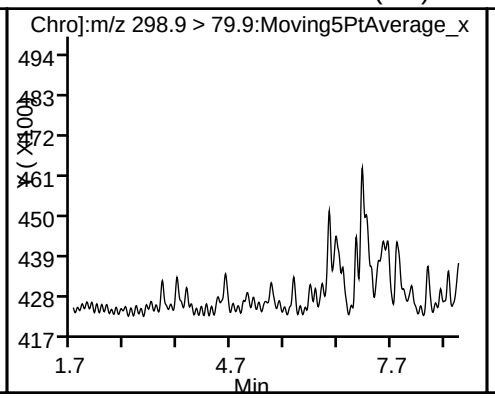
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07047.d

Injection Date:	07-Jul-2016 15:41:31	Instrument ID:	LC_LCMS5		
Lims ID:	280-85171-A-4-A	Lab Sample ID:	280-85171-4		
Client ID:	SB001-18.0				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	12
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

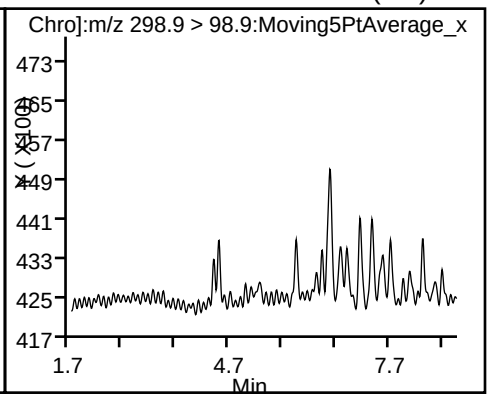
* 1 13C4 PFBA (IS)



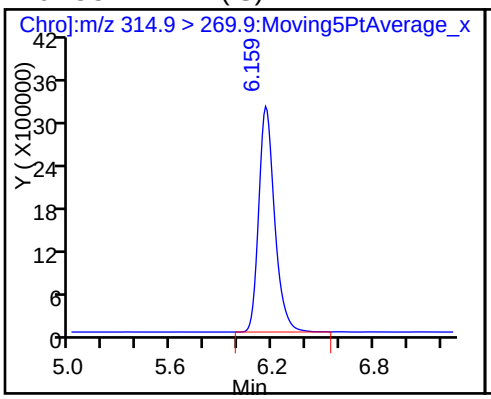
4 Perfluorobutane Sulfonate (ND)



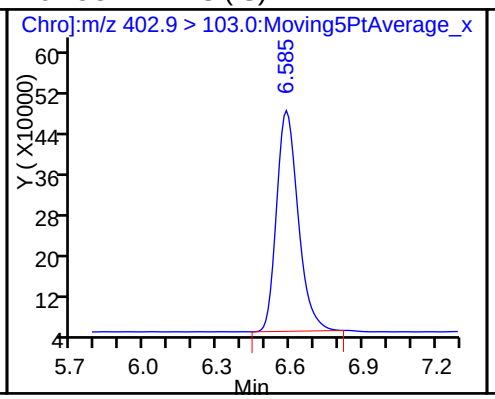
4 Perfluorobutane Sulfonate (ND)



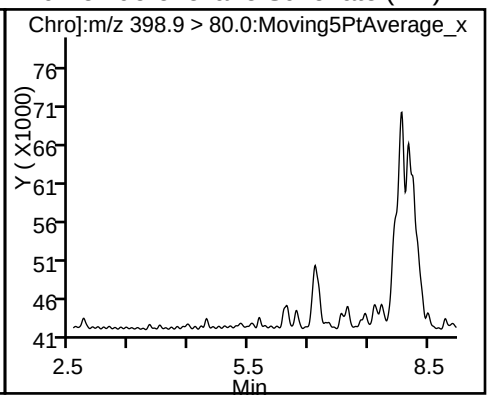
* 6 13C2 PFHxA (IS)



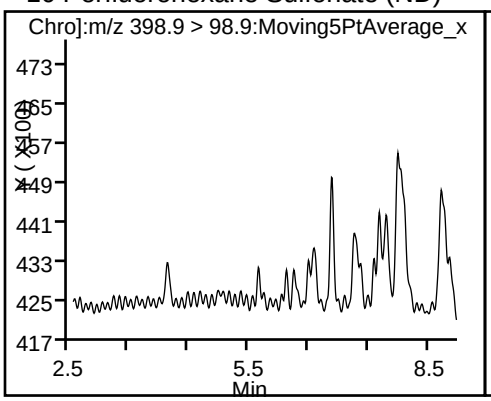
* 9 18O2 PFHxS (IS)



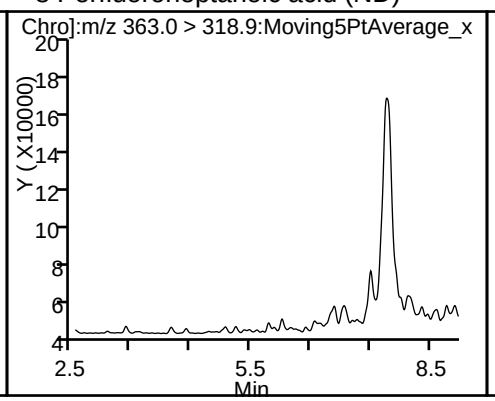
10 Perfluorohexane Sulfonate (ND)



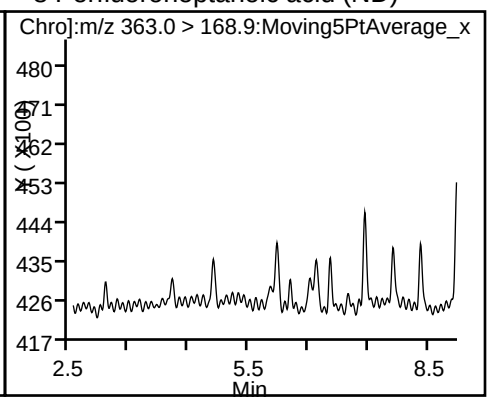
10 Perfluorohexane Sulfonate (ND)



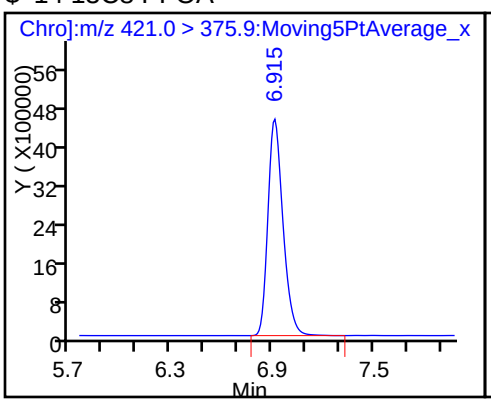
8 Perfluoroheptanoic acid (ND)



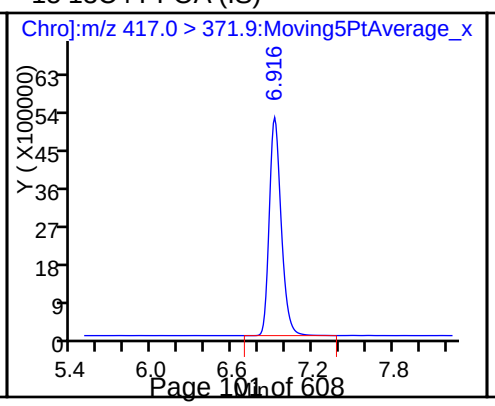
8 Perfluoroheptanoic acid (ND)



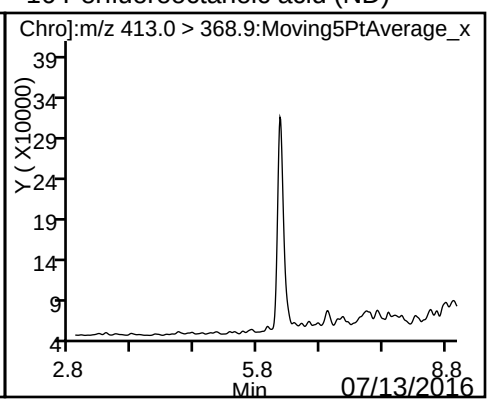
$ 14 13C8 PFOA



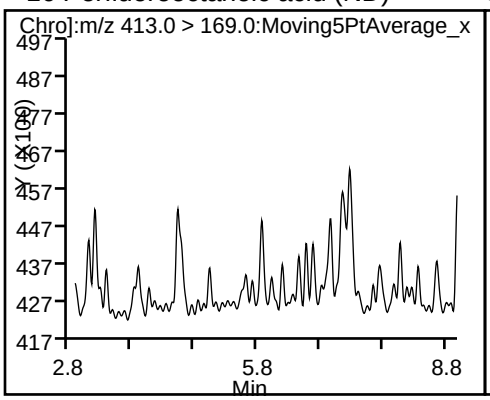
* 15 13C4 PFOA (IS)



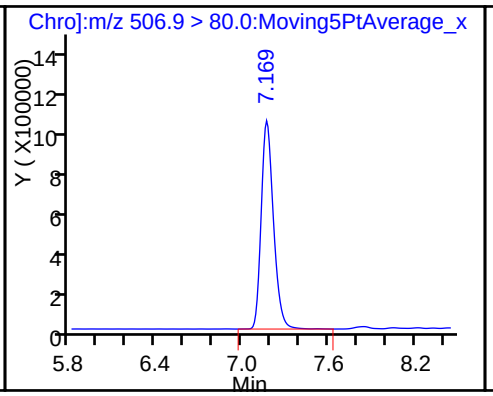
16 Perfluorooctanoic acid (ND)



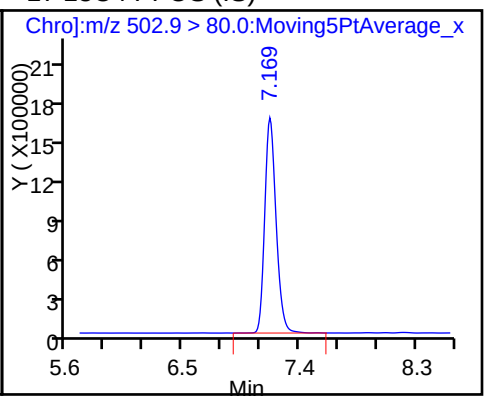
16 Perfluorooctanoic acid (ND)



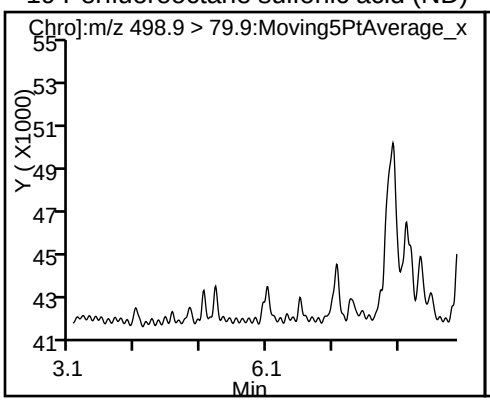
$ 18 13C8 PFOS



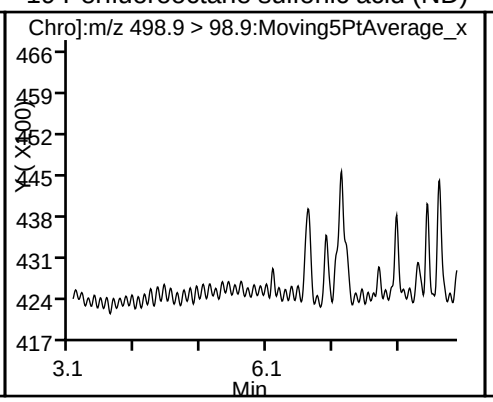
* 17 13C4 PFOS (IS)



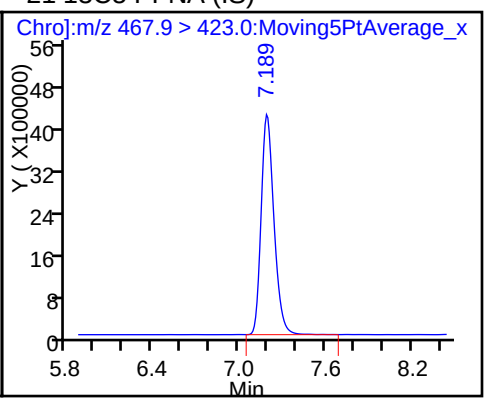
19 Perfluorooctane sulfonic acid (ND)



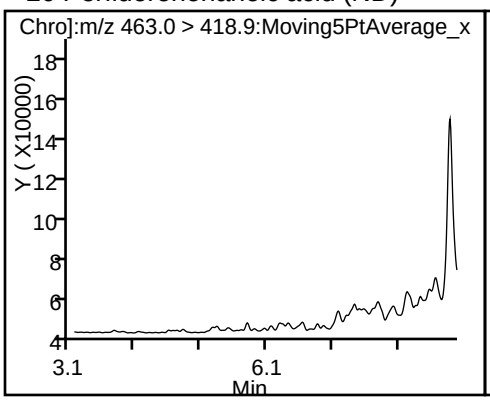
19 Perfluorooctane sulfonic acid (ND)



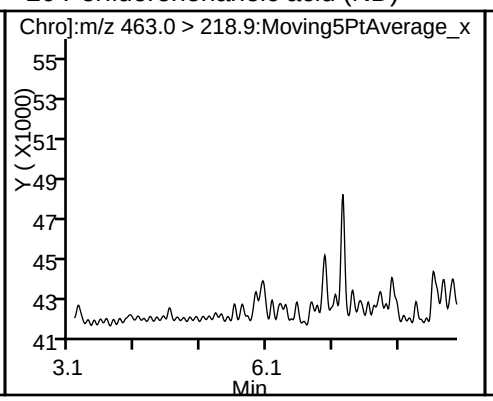
* 21 13C5 PFNA (IS)



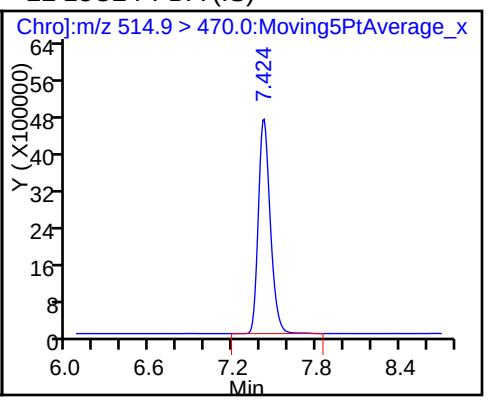
20 Perfluorononanoic acid (ND)



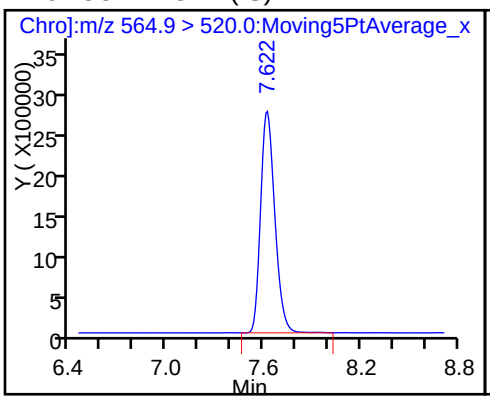
20 Perfluorononanoic acid (ND)



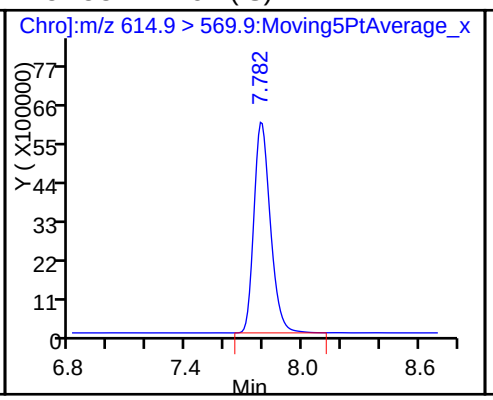
* 22 13C2 PFDA (IS)



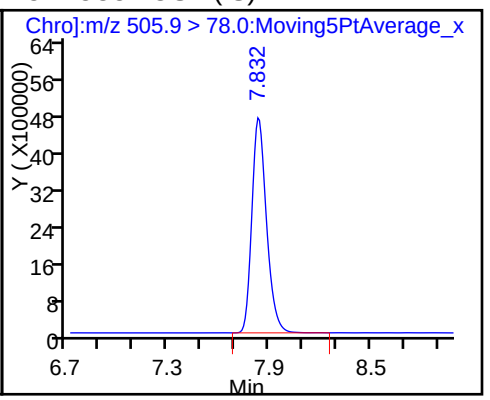
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB002-0.5 | Lab Sample ID: 280-85171-5

Matrix: Solid | Lab File ID: PC516G07048.d

Analysis Method: DV-LC-0012 | Date Collected: 06/29/2016 17:14

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.51(g) | Date Analyzed: 07/07/2016 15:53

Con. Extract Vol.: 20(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 8.8 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 332793 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.15	U	0.83	0.15
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.36	J	0.83	0.13
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.91		0.83	0.29
375-95-1	Perfluorononanoic acid (PFNA)	0.44	J	0.83	0.23
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	6.40		0.83	0.15
335-67-1	Perfluorooctanoic acid (PFOA)	0.51	J	0.83	0.24

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	105		57-153
STL01054	13C8 PFOS	105		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07048.d
Lims ID: 280-85171-A-5-A Lab Sample ID: 280-85171-5
Client ID: SB002-0.5
Sample Type: Client
Inject. Date: 07-Jul-2016 15:53:49 ALS Bottle#: 0 Worklist Smp#: 13
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85171-A-5-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 08-Jul-2016 09:15:01 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK002

First Level Reviewer: fiedlerh Date: 08-Jul-2016 08:11:41

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.636	4.569	0.067		32228820	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.705				ND			
298.9 > 98.9		5.705							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	6.122	6.141	-0.019		23074727	10.0			
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.528	6.537	-0.009		2436798	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.538	6.538	0.0	1.001	517920	0.4383			R
398.9 > 98.9	6.538	6.538	0.0	1.001	187964		2.76(1.30-2.41)		
8 Perfluoroheptanoic acid									M
363.0 > 318.9	6.528	6.538	-0.010	0.953	598729	0.1741			M
363.0 > 168.9	6.528	6.538	-0.010	0.953	147056		4.07(3.35-6.23)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.849	6.868	-0.019	1.000	27620402	10.3			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.849	6.868	-0.019		33269694	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.859	6.868	-0.009	1.001	1083912	0.2432			
413.0 > 169.0	6.849	6.868	-0.019	1.000	320500		3.38(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	7.112	7.131	-0.019	1.000	5764520	9.76			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	7.112	7.131	-0.019		9234646	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	7.112	7.131	-0.019	1.000	3527586	3.07			R
498.9 > 98.9	7.112	7.131	-0.019	1.000	1171904		3.01(1.31-2.43)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 21 13C5 PFNA (IS)									
467.9 > 423.0	7.132	7.160	-0.028		27259241	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	7.132	7.151	-0.019	1.000	782034	0.2132			
463.0 > 218.9	7.151	7.151	0.0	1.003	126808		6.17(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.367	7.386	-0.019		28508567	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.575	7.584	-0.009		17470014	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.744	7.753	-0.009		36312862	10.0			
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.794	7.870	-0.076		22515369	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

R - Failed Signal Ratio Test

Review Flags

M - Manually Integrated

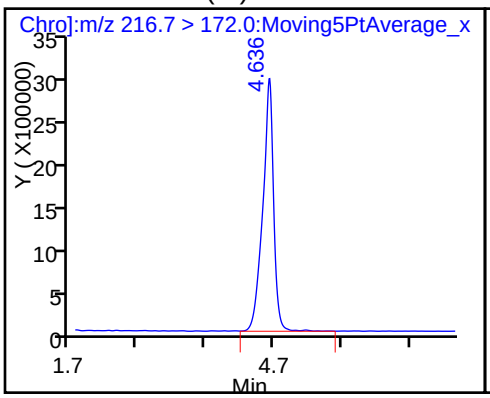
Report Date: 08-Jul-2016 09:15:56 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

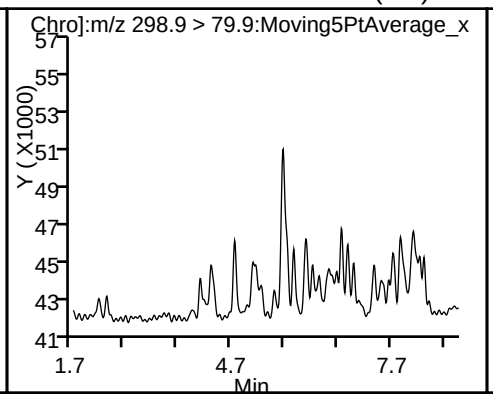
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07048.d

Injection Date:	07-Jul-2016 15:53:49	Instrument ID:	LC_LCMS5		
Lims ID:	280-85171-A-5-A	Lab Sample ID:	280-85171-5		
Client ID:	SB002-0.5				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	13
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

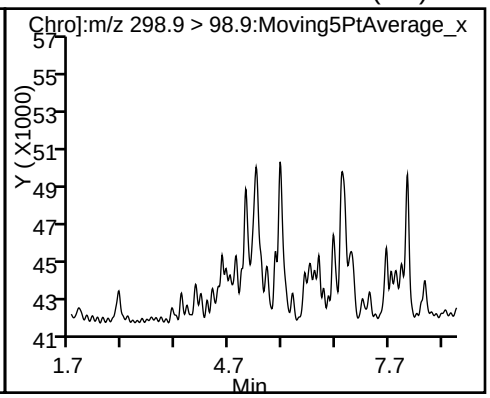
* 1 13C4 PFBA (IS)



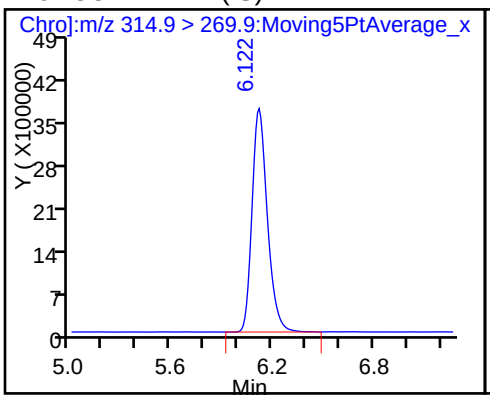
4 Perfluorobutane Sulfonate (ND)



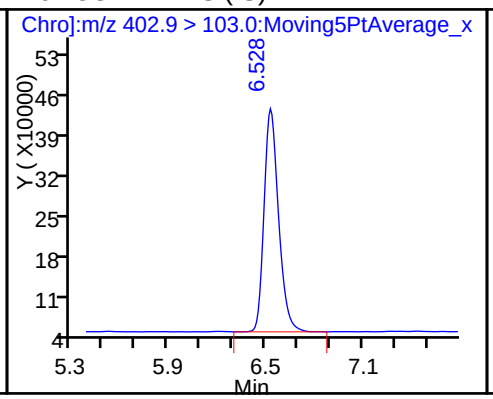
4 Perfluorobutane Sulfonate (ND)



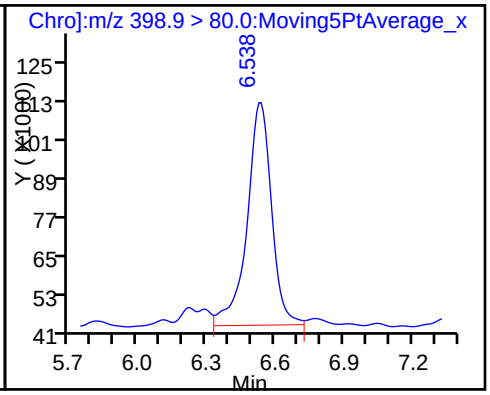
* 6 13C2 PFHxA (IS)



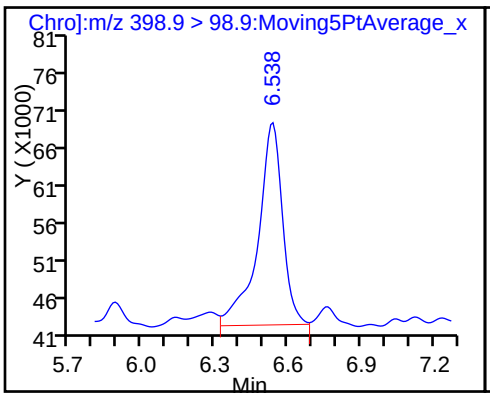
* 9 18O2 PFHxS (IS)



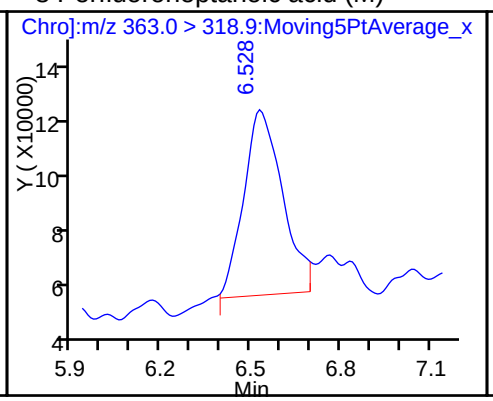
10 Perfluorohexane Sulfonate



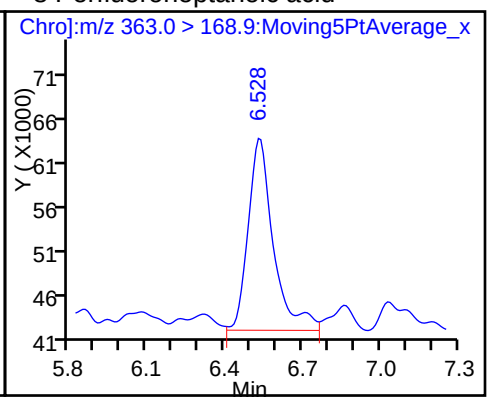
10 Perfluorohexane Sulfonate



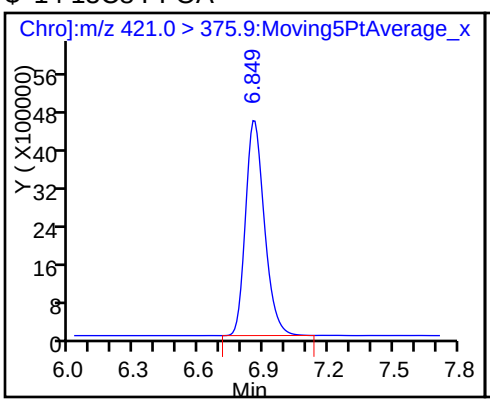
8 Perfluoroheptanoic acid (M)



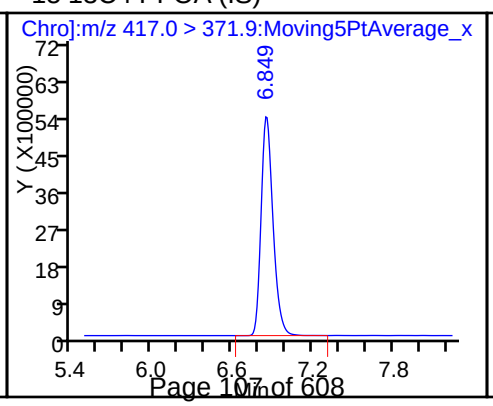
8 Perfluoroheptanoic acid



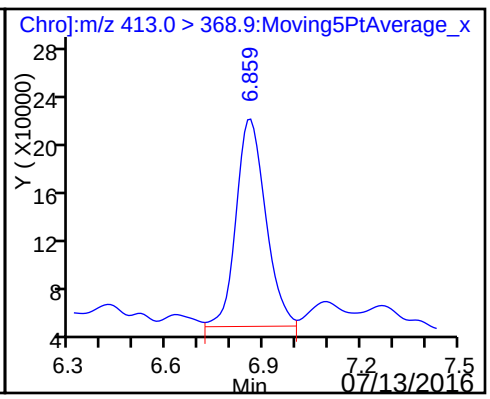
$ 14 13C8 PFOA



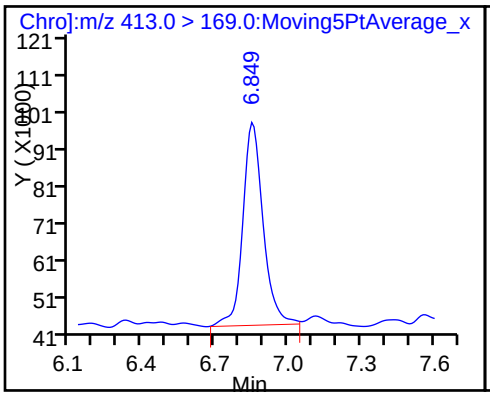
* 15 13C4 PFOA (IS)



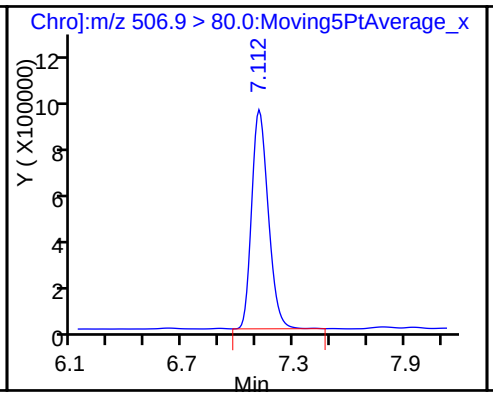
16 Perfluorooctanoic acid



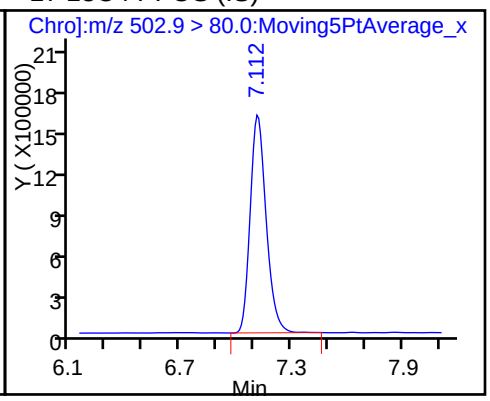
16 Perfluorooctanoic acid



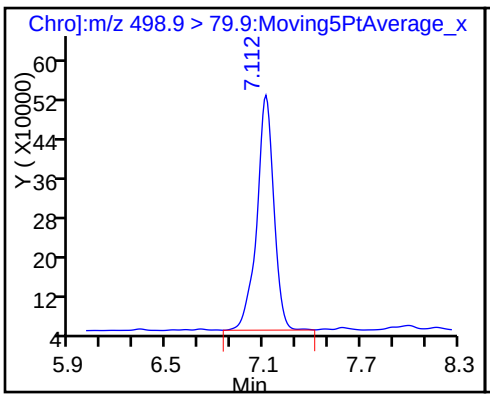
$ 18 13C8 PFOS



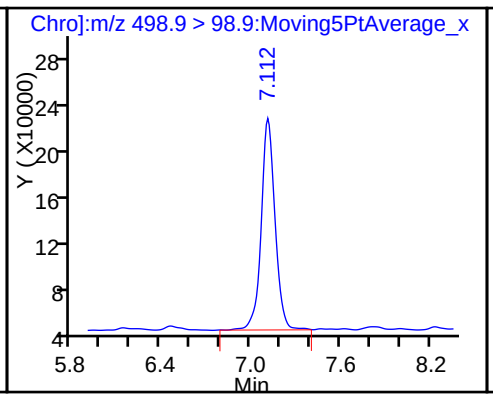
* 17 13C4 PFOS (IS)



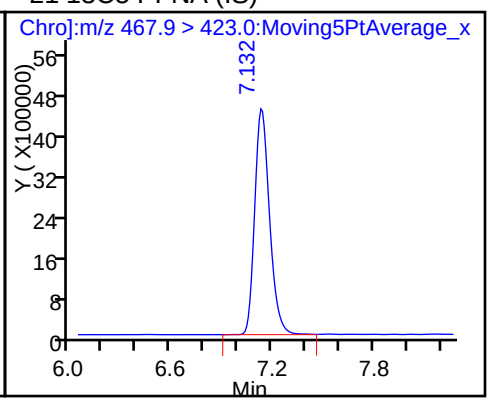
19 Perfluorooctane sulfonic acid



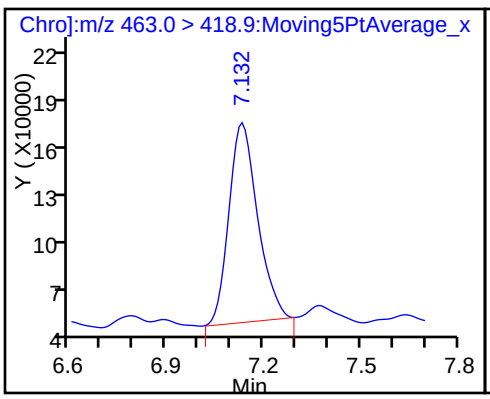
19 Perfluorooctane sulfonic acid



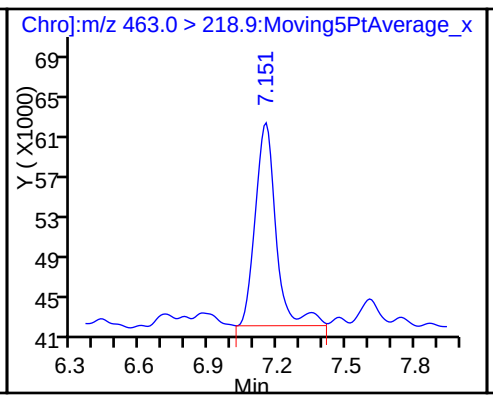
* 21 13C5 PFNA (IS)



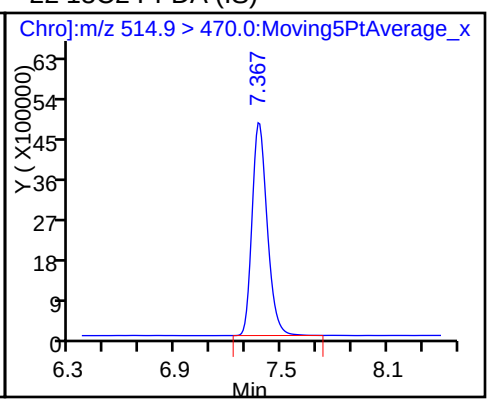
20 Perfluorononanoic acid



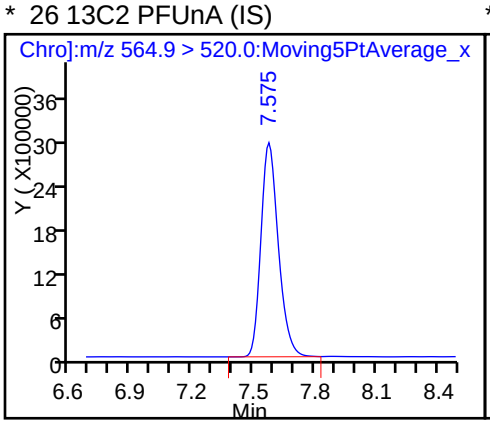
20 Perfluorononanoic acid



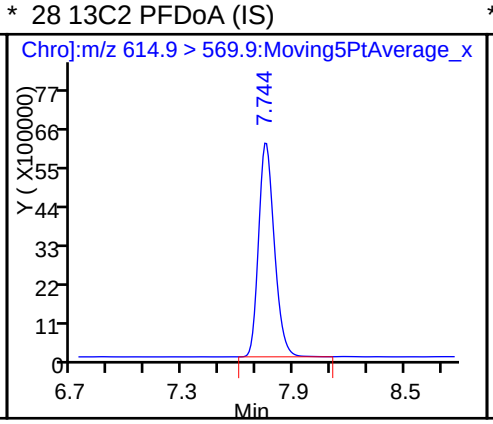
* 22 13C2 PFDA (IS)



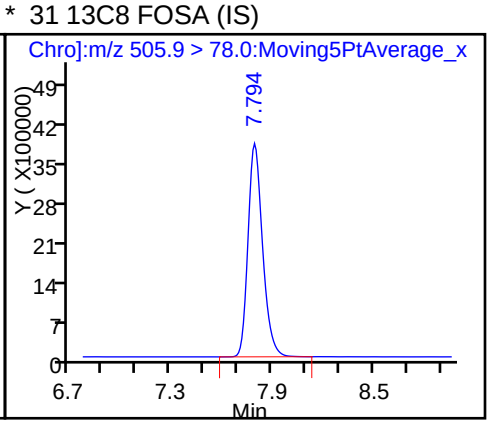
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



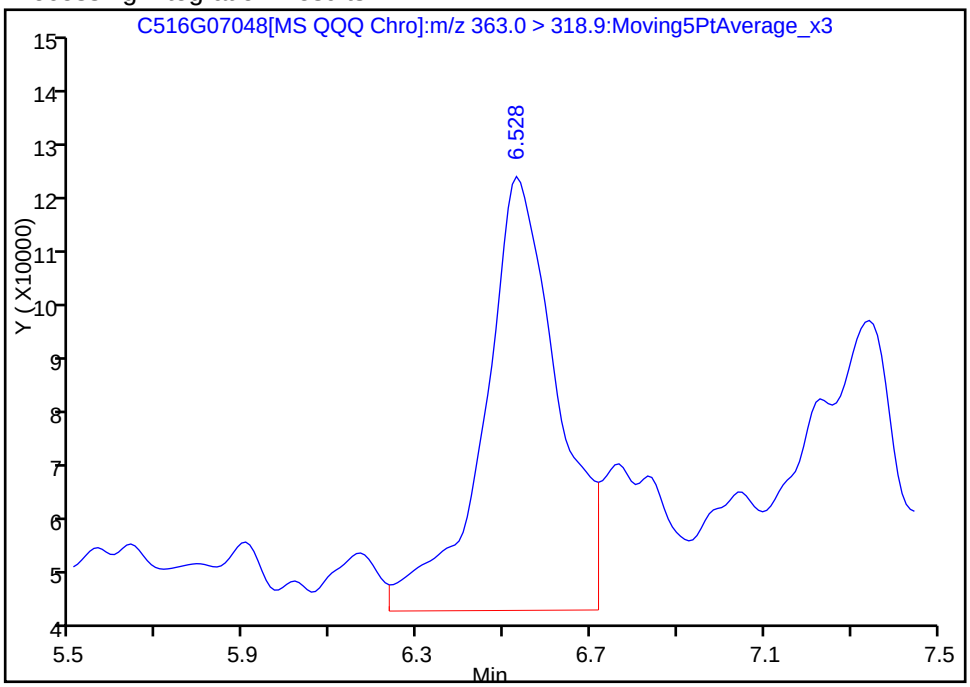
TestAmerica Denver

Data File:	\\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07048.d				
Injection Date:	07-Jul-2016 15:53:49	Instrument ID:	LC_LCMS5		
Lims ID:	280-85171-A-5-A	Lab Sample ID:	280-85171-5		
Client ID:	SB002-0.5				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	13
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		
Column:		Detector	MS QQQ		

8 Perfluoroheptanoic acid, CAS: 375-85-9

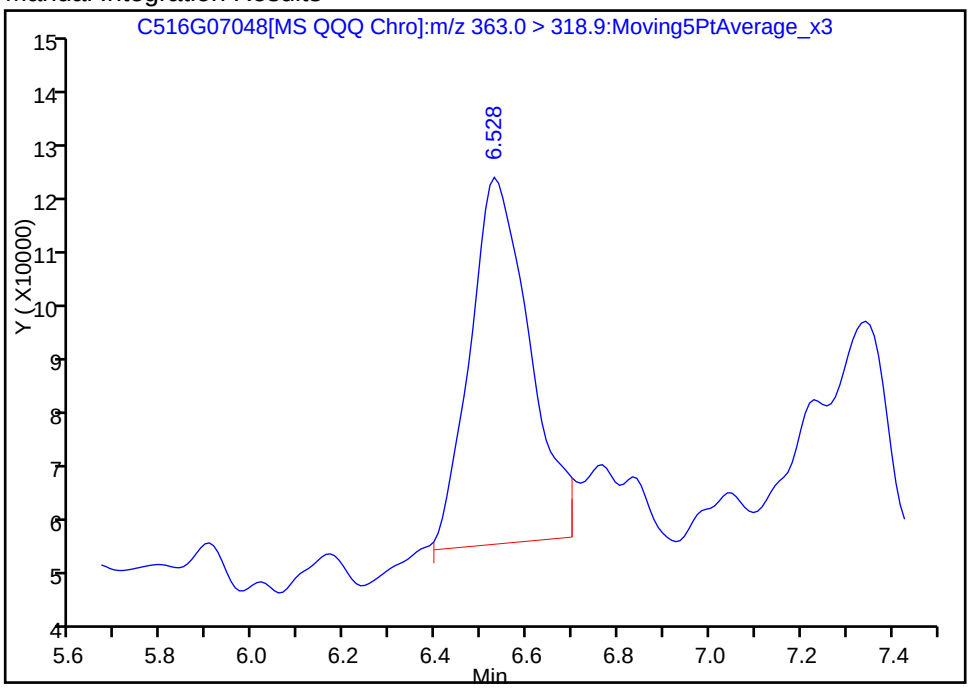
Processing Integration Results

RT: 6.53
Area: 928408
Amount: 0.288429
Amount Units: ug/L



Manual Integration Results

RT: 6.53
Area: 598729
Amount: 0.174135
Amount Units: ug/L



Reviewer: fiedlerh, 08-Jul-2016 08:11:41
Audit Action: Manually Integrated
Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB003-0.5 | Lab Sample ID: 280-85171-6

Matrix: Solid | Lab File ID: PC516G07050.d

Analysis Method: DV-LC-0012 | Date Collected: 06/29/2016 17:20

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.43(g) | Date Analyzed: 07/07/2016 16:18

Con. Extract Vol.: 20(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 19.0 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 332793 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.17	U	0.95	0.17
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.90	J	0.95	0.14
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.99		0.95	0.33
375-95-1	Perfluorononanoic acid (PFNA)	3.64		0.95	0.26
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	99.8		0.95	0.17
335-67-1	Perfluorooctanoic acid (PFOA)	1.21		0.95	0.27

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	102		57-153
STL01054	13C8 PFOS	107		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07050.d
Lims ID: 280-85171-A-6-A Lab Sample ID: 280-85171-6
Client ID: SB003-0.5
Sample Type: Client
Inject. Date: 07-Jul-2016 16:18:26 ALS Bottle#: 0 Worklist Smp#: 15
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85171-A-6-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 08-Jul-2016 09:16:01 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK002

First Level Reviewer: fiedlerh Date: 08-Jul-2016 08:12:47

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.664	4.579	0.085		28302132	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.630				ND			
298.9 > 98.9		5.630							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	6.150	6.084	0.066		20232700	10.0			
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.566	6.499	0.067		2144176	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.566	6.490	0.076	1.000	437886	0.4178			R
398.9 > 98.9	6.575	6.490	0.085	1.001	102229		4.28(1.30-2.41)		
8 Perfluoroheptanoic acid									M
363.0 > 318.9	6.557	6.491	0.066	0.951	1084298	0.3791			M
363.0 > 168.9	6.566	6.491	0.075	0.952	273347		3.97(3.35-6.23)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.896	6.830	0.066	1.000	24583192	10.0			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.897	6.830	0.067		30316635	10.0			
16 Perfluorooctanoic acid									R
413.0 > 368.9	6.906	6.831	0.075	1.001	1822554	0.5095			R
413.0 > 169.0	6.897	6.831	0.066	1.000	660968		2.76(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	7.150	7.093	0.057	1.000	5026612	9.95			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	7.150	7.093	0.057		7897236	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	7.150	7.093	0.057	1.000	40533327	42.1			R
498.9 > 98.9	7.150	7.093	0.057	1.000	14230153		2.85(1.31-2.43)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
20 Perfluorononanoic acid									
463.0 > 418.9	7.170	7.123	0.047	1.000	3995352	1.54			
463.0 > 218.9	7.170	7.123	0.047	1.000	554706		7.20(5.59-10.38)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	7.170	7.123	0.047		22619328	10.0			
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.386	7.357	0.029		25364522	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.584	7.556	0.028		16093824	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.753	7.734	0.019		32606308	10.0			
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.804	7.775	0.029		18778120	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

R - Failed Signal Ratio Test

Review Flags

M - Manually Integrated

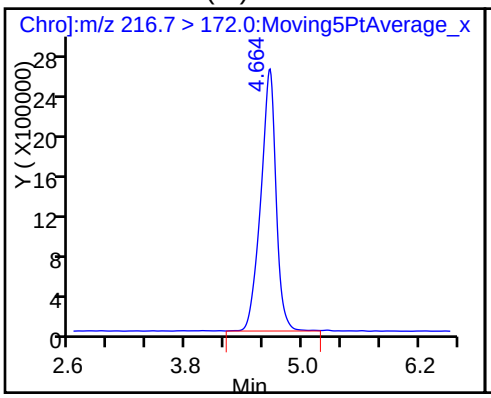
Report Date: 08-Jul-2016 09:16:08 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

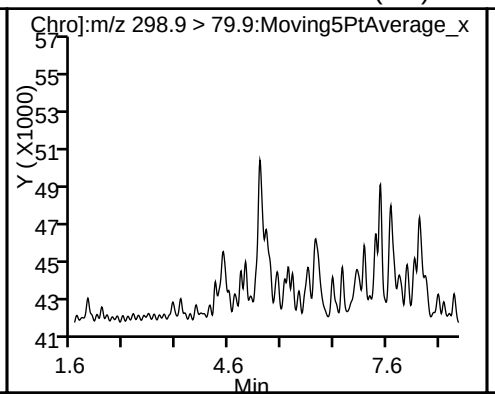
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07050.d

Injection Date:	07-Jul-2016 16:18:26	Instrument ID:	LC_LCMS5		
Lims ID:	280-85171-A-6-A	Lab Sample ID:	280-85171-6		
Client ID:	SB003-0.5				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	15
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

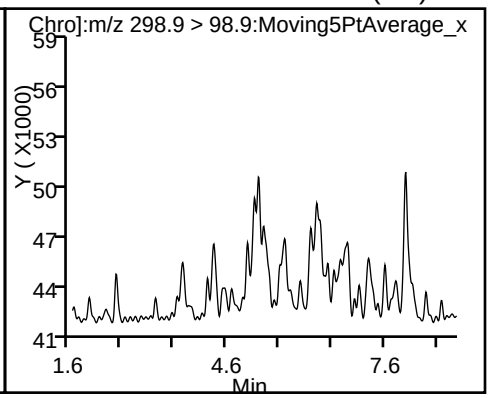
* 1 13C4 PFBA (IS)



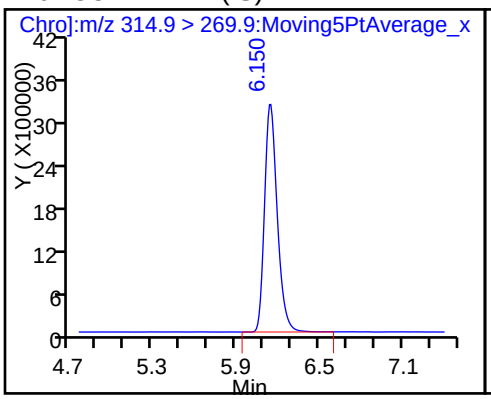
4 Perfluorobutane Sulfonate (ND)



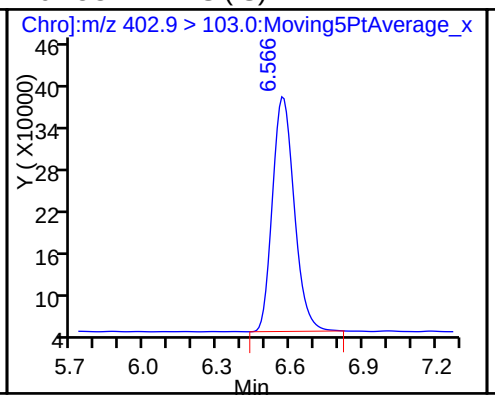
4 Perfluorobutane Sulfonate (ND)



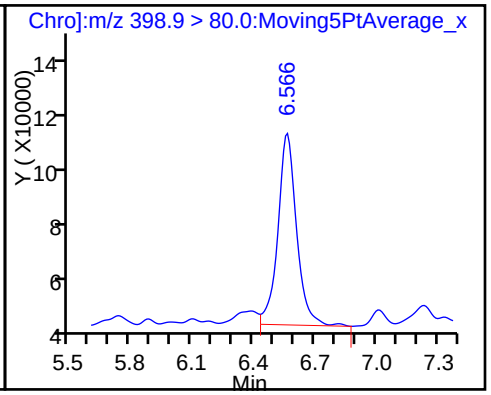
* 6 13C2 PFHxA (IS)



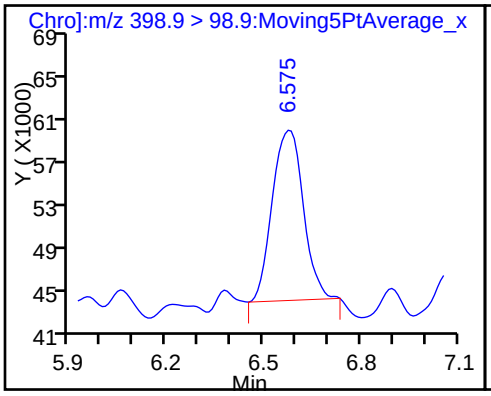
* 9 18O2 PFHxS (IS)



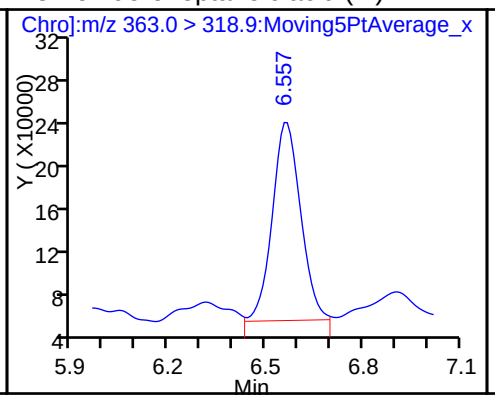
10 Perfluorohexane Sulfonate



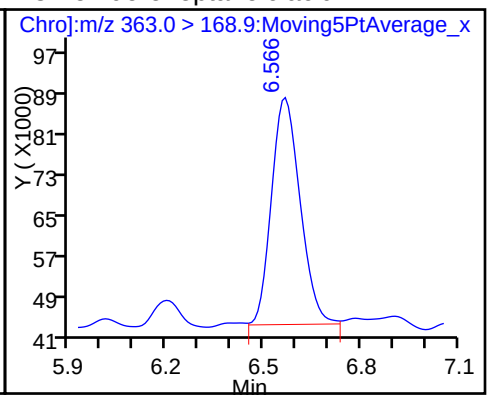
10 Perfluorohexane Sulfonate



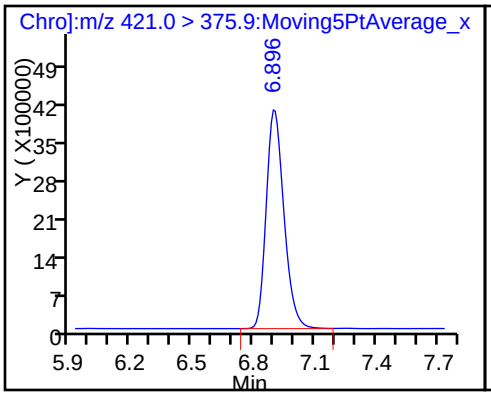
8 Perfluoroheptanoic acid (M)



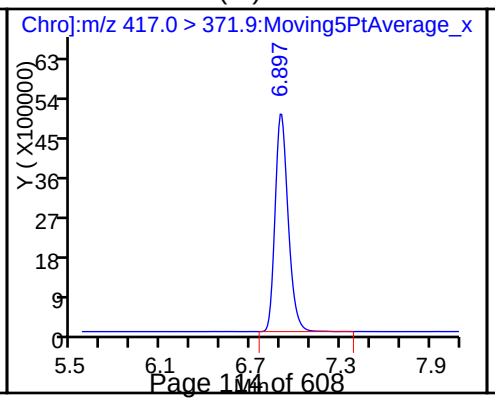
8 Perfluoroheptanoic acid



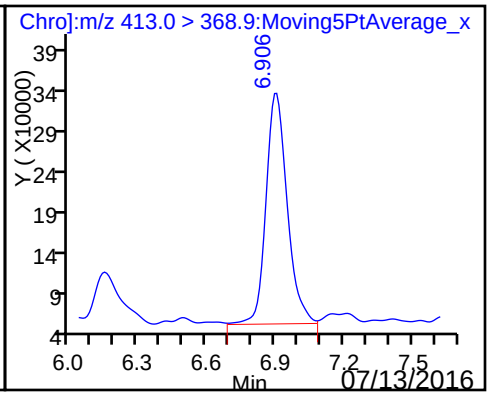
$ 14 13C8 PFOA



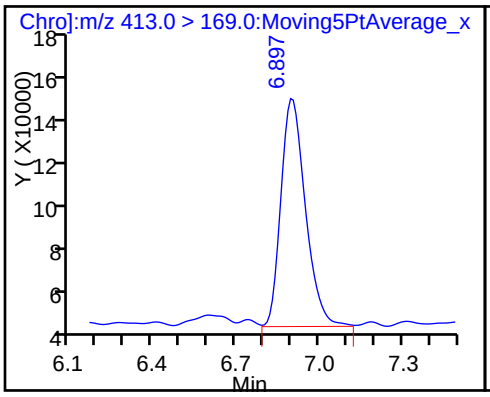
* 15 13C4 PFOA (IS)



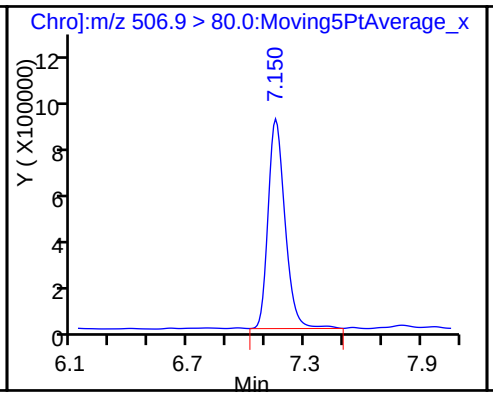
16 Perfluorooctanoic acid



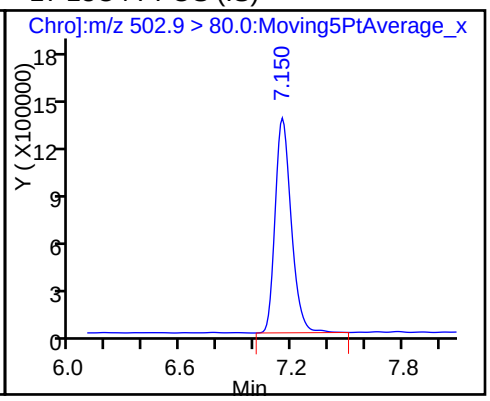
16 Perfluorooctanoic acid



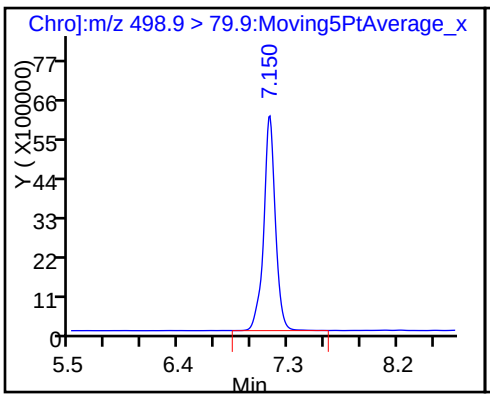
$ 18 13C8 PFOS



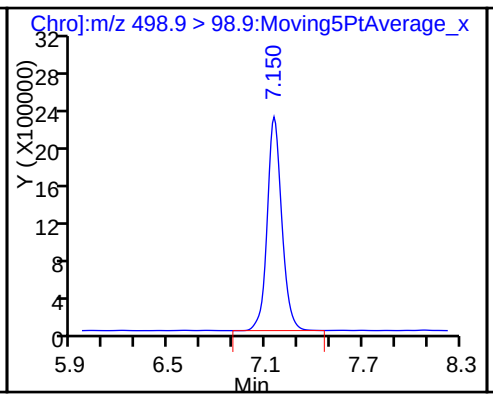
* 17 13C4 PFOS (IS)



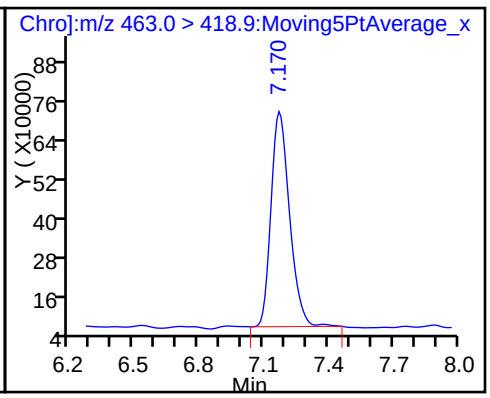
19 Perfluorooctane sulfonic acid



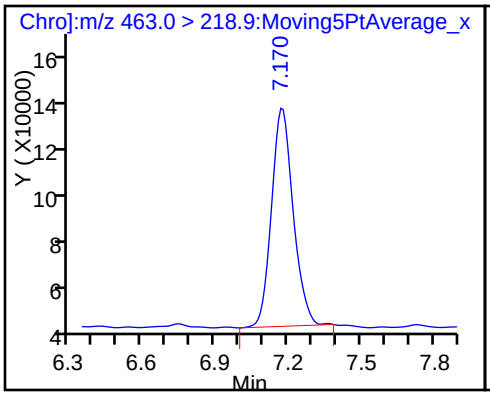
19 Perfluorooctane sulfonic acid



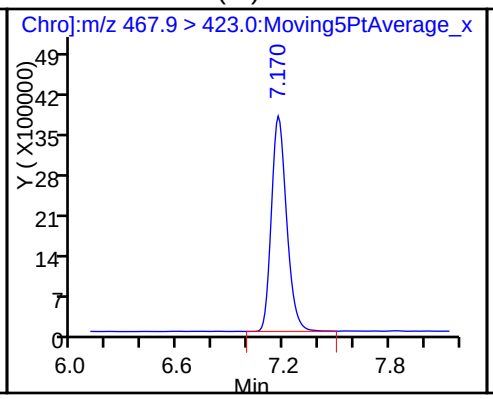
20 Perfluorononanoic acid



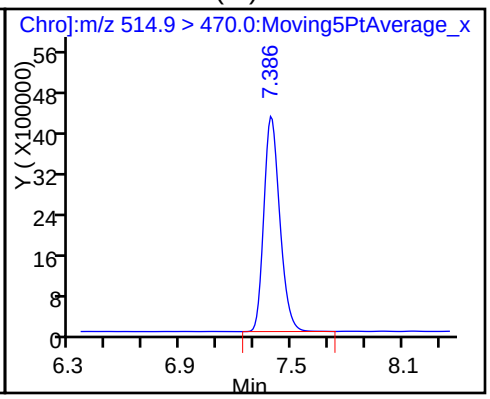
20 Perfluorononanoic acid



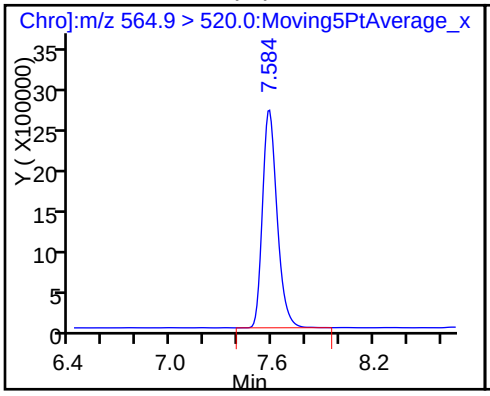
* 21 13C5 PFNA (IS)



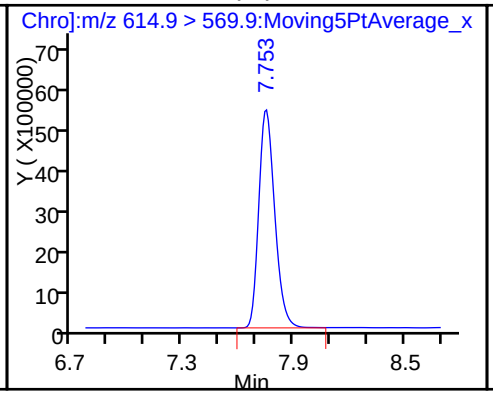
* 22 13C2 PFDA (IS)



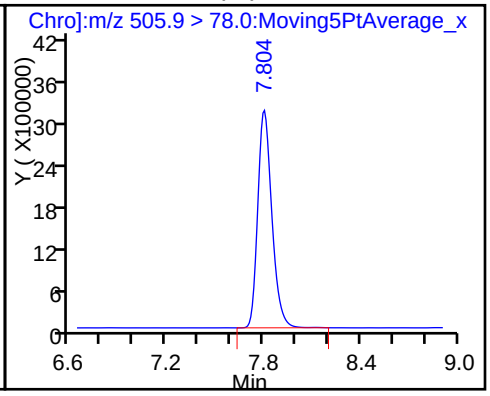
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



Manual Integration/User Assign Peak Report

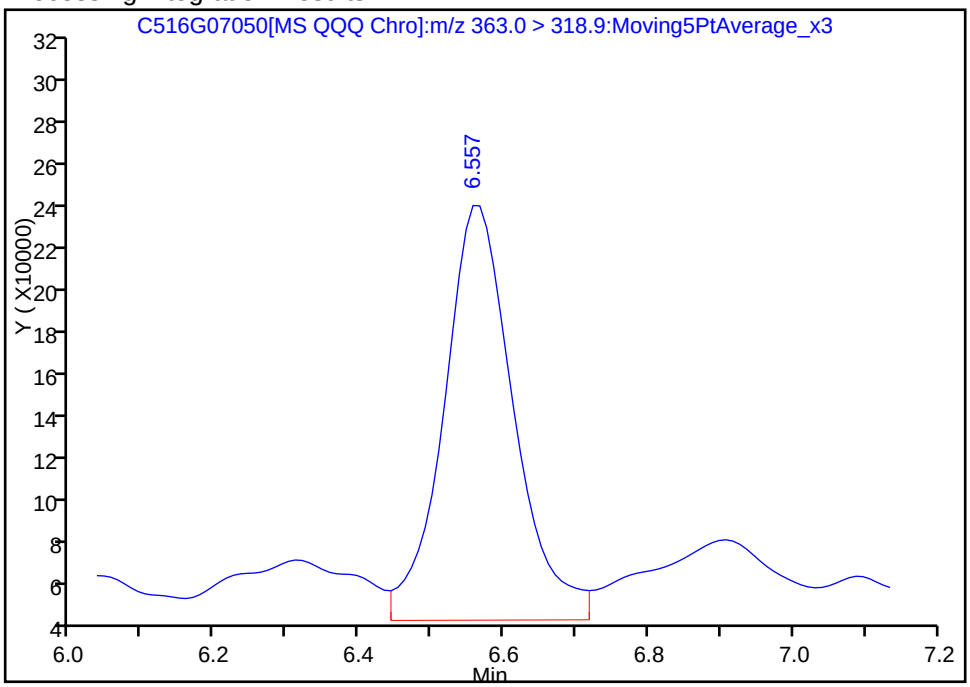
TestAmerica Denver

Data File:	\\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07050.d				
Injection Date:	07-Jul-2016 16:18:26	Instrument ID:	LC_LCMS5		
Lims ID:	280-85171-A-6-A	Lab Sample ID:	280-85171-6		
Client ID:	SB003-0.5				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	15
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		
Column:		Detector	MS QQQ		

8 Perfluoroheptanoic acid, CAS: 375-85-9

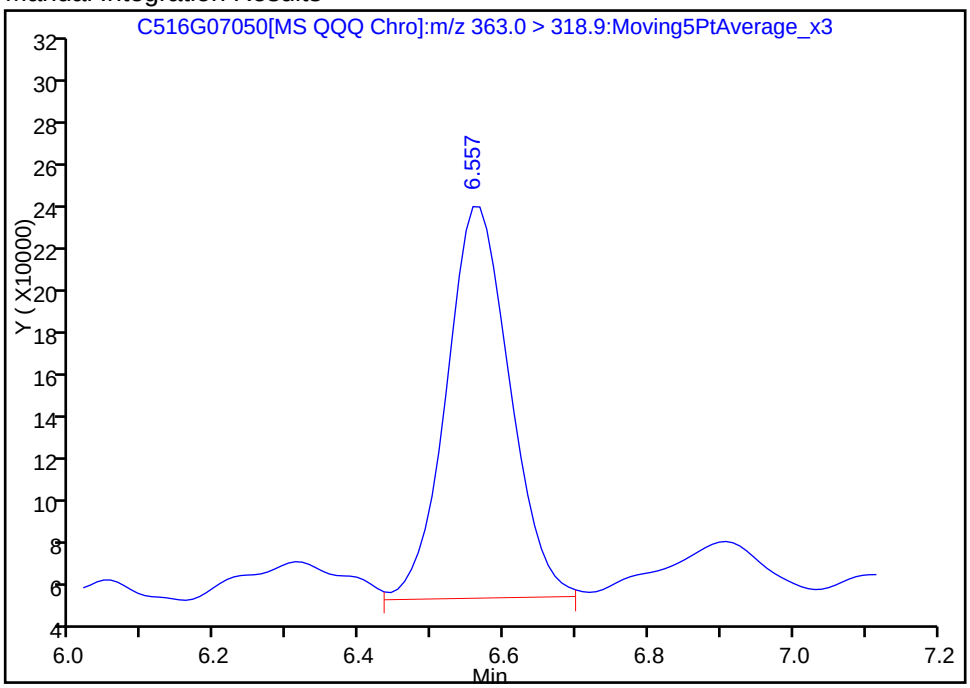
Processing Integration Results

RT: 6.56
Area: 1263592
Amount: 0.447303
Amount Units: ug/L



Manual Integration Results

RT: 6.56
Area: 1084298
Amount: 0.379090
Amount Units: ug/L



Reviewer: fiedlerh, 08-Jul-2016 08:12:47
Audit Action: Manually Integrated
Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB006-0.5 | Lab Sample ID: 280-85171-7

Matrix: Solid | Lab File ID: PC516G07051.d

Analysis Method: DV-LC-0012 | Date Collected: 06/30/2016 00:30

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.42(g) | Date Analyzed: 07/07/2016 16:30

Con. Extract Vol.: 20(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 19.9 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 332793 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.58	J	0.96	0.17
375-85-9	Perfluoroheptanoic acid (PFHpA)	1.35		0.96	0.14
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	13.9		0.96	0.34
375-95-1	Perfluorononanoic acid (PFNA)	0.64	J	0.96	0.26
335-67-1	Perfluorooctanoic acid (PFOA)	1.38		0.96	0.28

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	103		57-153
STL01054	13C8 PFOS	102		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07051.d
Lims ID: 280-85171-A-7-A Lab Sample ID: 280-85171-7
Client ID: SB006-0.5
Sample Type: Client
Inject. Date: 07-Jul-2016 16:30:45 ALS Bottle#: 0 Worklist Smp#: 16
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85171-A-7-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 08-Jul-2016 09:16:01 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK002

First Level Reviewer: fiedlerh Date: 08-Jul-2016 08:13:57

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.550	4.579	-0.029		22825860	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.601	5.630	-0.029	0.864	245280	0.2410			
298.9 > 98.9	5.601	5.630	-0.029	0.864	74285		3.30(1.80-3.35)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	6.046	6.084	-0.038		18119069	10.0			
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.480	6.499	-0.019		1905918	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.481	6.490	-0.009	1.000	4556324	5.81			R
398.9 > 98.9	6.481	6.490	-0.009	1.000	1430158		3.19(1.30-2.41)		
8 Perfluoroheptanoic acid									RM
363.0 > 318.9	6.462	6.491	-0.029	0.947	1368620	0.5616			RM
363.0 > 168.9	6.472	6.491	-0.019	0.949	158782		8.62(3.35-6.23)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.821	6.830	-0.009	1.000	21665647	10.1			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.821	6.830	-0.009		26530828	10.0			
16 Perfluorooctanoic acid									RM
413.0 > 368.9	6.821	6.831	-0.010	1.000	1781996	0.5777			RM
413.0 > 169.0	6.821	6.831	-0.010	1.000	645683		2.76(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	7.083	7.093	-0.010	1.000	3963960	9.50			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	7.084	7.093	-0.009		6526048	9.56			
19 Perfluorooctane sulfonic acid									RE
498.9 > 79.9	7.084	7.093	-0.009	1.000	119630526	150.6			RE
498.9 > 98.9	7.084	7.093	-0.009	1.000	40518714		2.95(1.31-2.43)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
20 Perfluorononanoic acid									R
463.0 > 418.9	7.113	7.123	-0.010	1.001	622582	0.2683			R
463.0 > 218.9	7.123	7.123	0.0	1.003	111920		5.56(5.59-10.38)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	7.104	7.123	-0.019		17866844	10.0			
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.338	7.357	-0.019		22441725	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.546	7.556	-0.010		14096390	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.725	7.734	-0.009		29338047	10.0			
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.775	7.775	0.0		15663012	10.0			

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

E - Exceeded Maximum Amount

Review Flags

M - Manually Integrated

Report Date: 08-Jul-2016 09:16:13 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07051.d

Injection Date: 07-Jul-2016 16:30:45 Instrument ID: LC_LCMS5

Lims ID: 280-85171-A-7-A Lab Sample ID: 280-85171-7

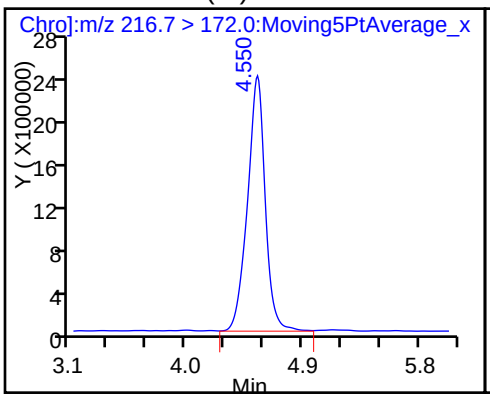
Client ID: SB006-0.5

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 16

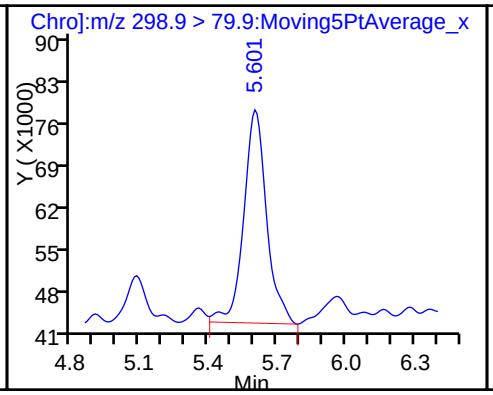
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

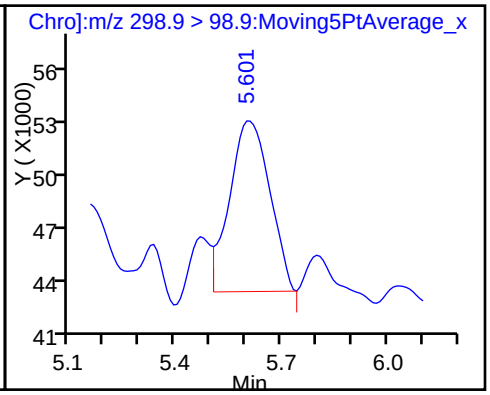
* 1 13C4 PFBA (IS)



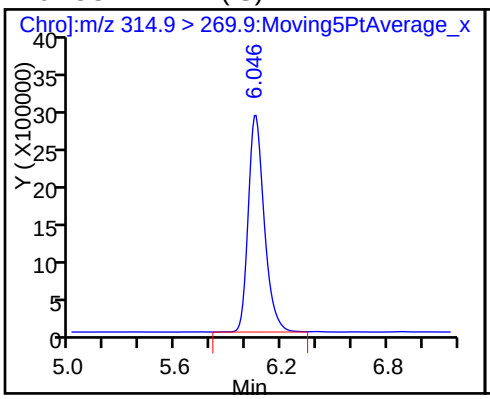
4 Perfluorobutane Sulfonate



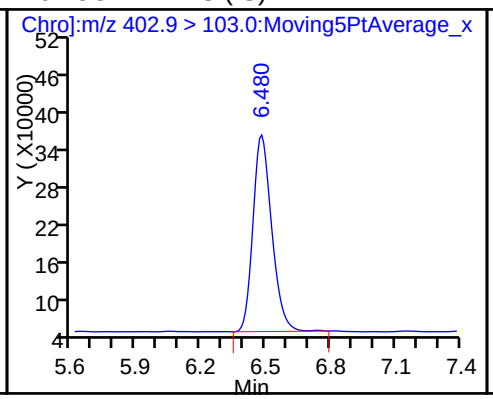
4 Perfluorobutane Sulfonate



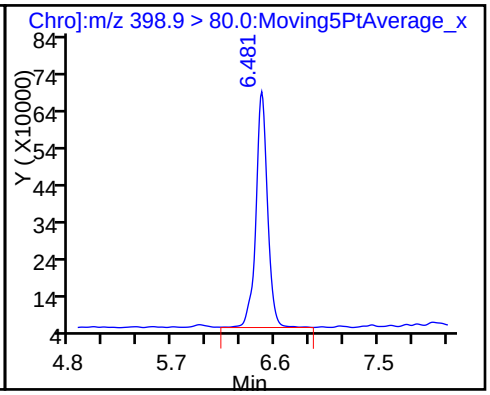
* 6 13C2 PFHxA (IS)



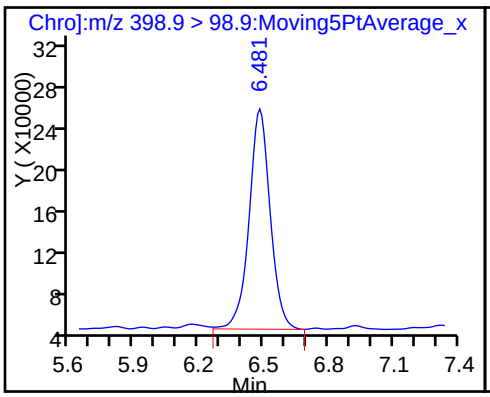
* 9 18O2 PFHxS (IS)



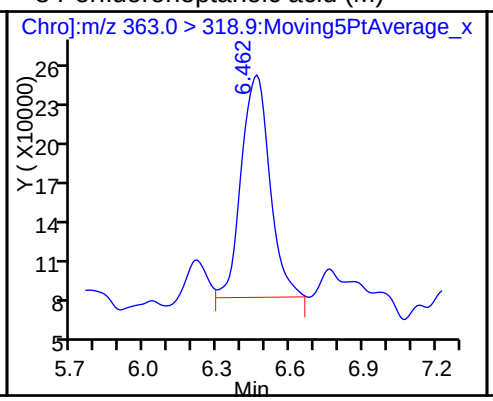
10 Perfluorohexane Sulfonate



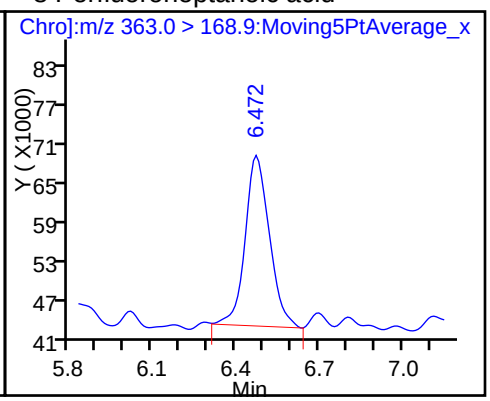
10 Perfluorohexane Sulfonate



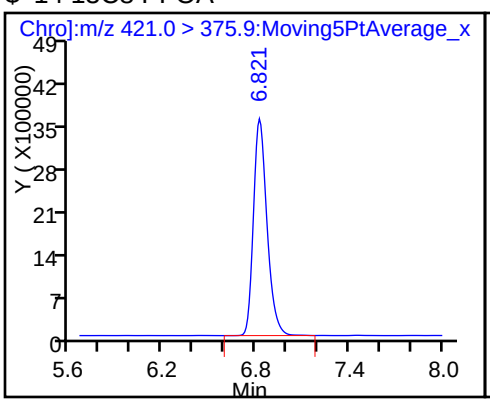
8 Perfluoroheptanoic acid (M)



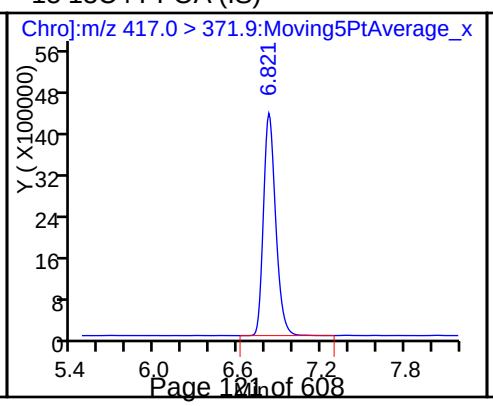
8 Perfluoroheptanoic acid



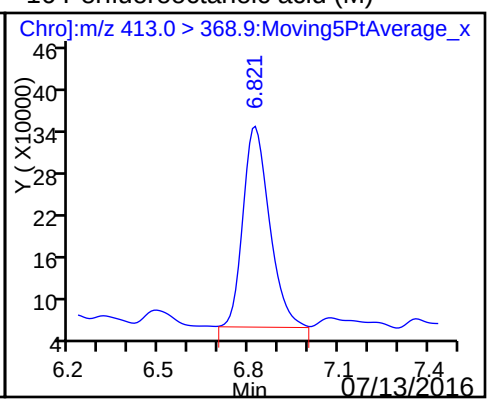
$ 14 13C8 PFOA



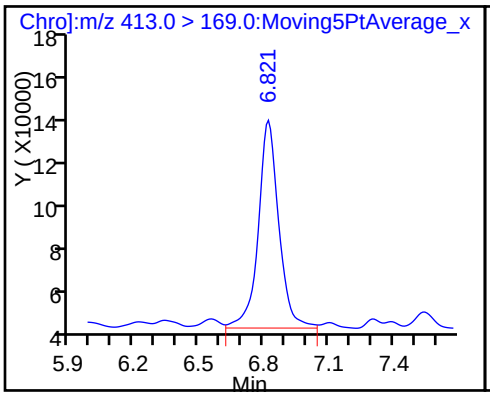
* 15 13C4 PFOA (IS)



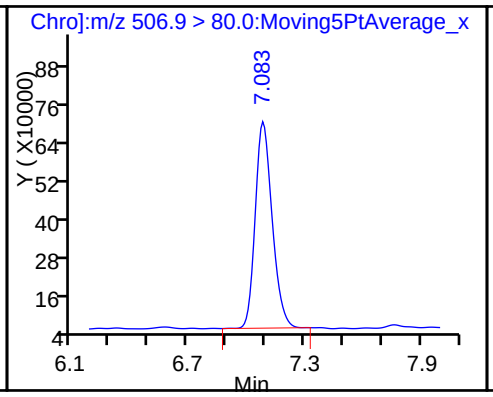
16 Perfluorooctanoic acid (M)



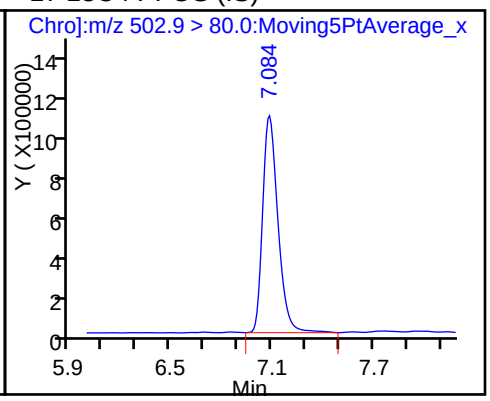
16 Perfluorooctanoic acid



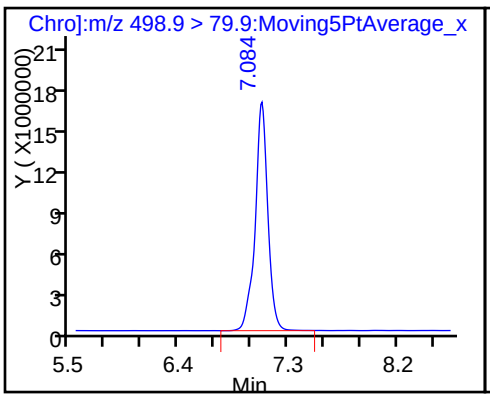
$ 18 13C8 PFOS



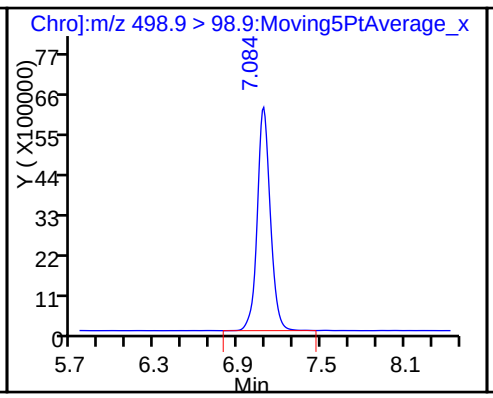
* 17 13C4 PFOS (IS)



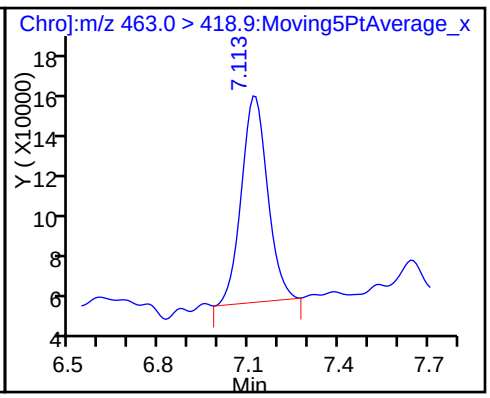
19 Perfluorooctane sulfonic acid



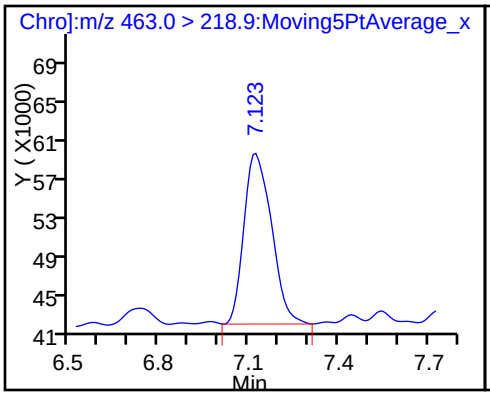
19 Perfluorooctane sulfonic acid



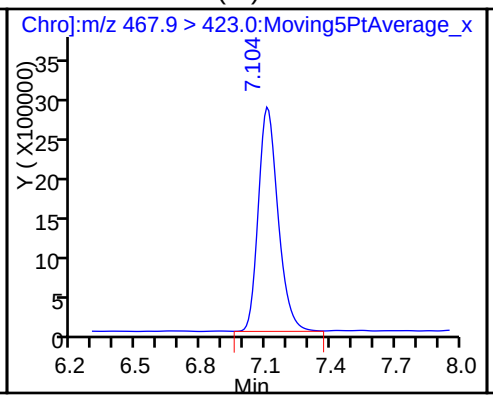
20 Perfluorononanoic acid



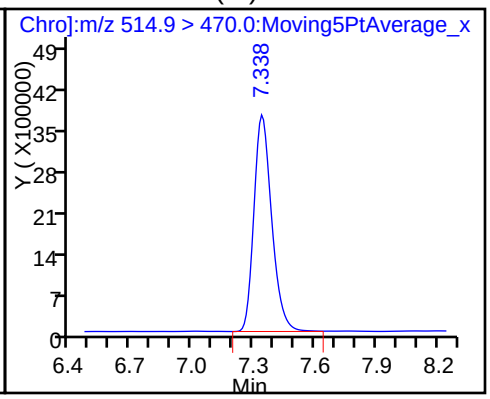
20 Perfluorononanoic acid



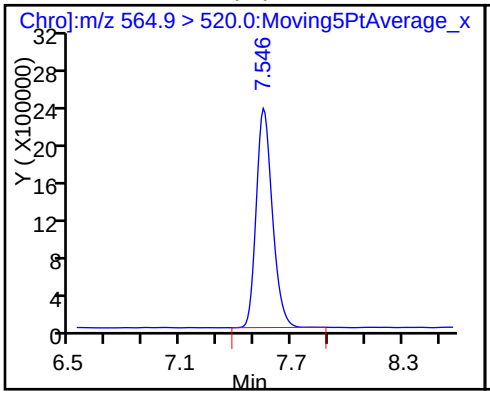
* 21 13C5 PFNA (IS)



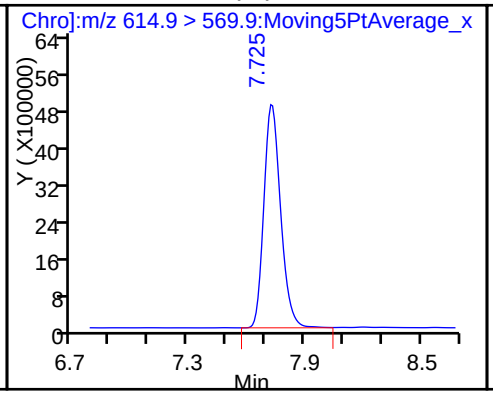
* 22 13C2 PFDA (IS)



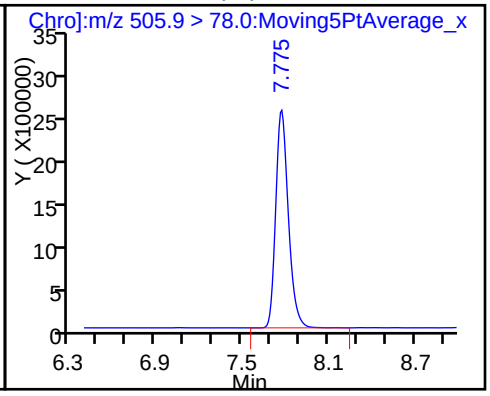
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



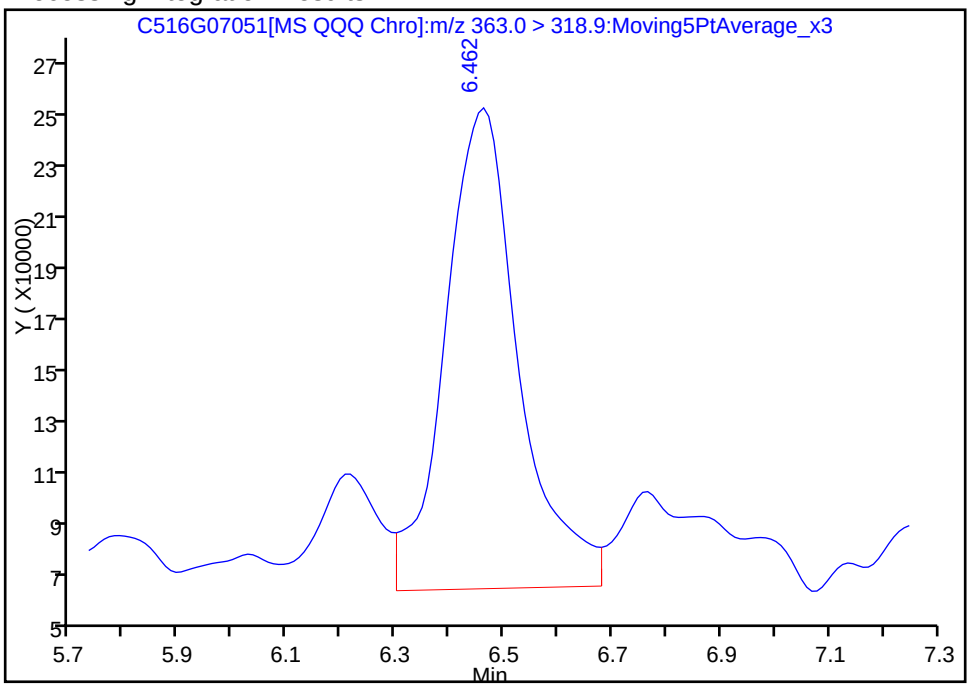
TestAmerica Denver

Data File:	\\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07051.d				
Injection Date:	07-Jul-2016 16:30:45	Instrument ID:	LC_LCMS5		
Lims ID:	280-85171-A-7-A	Lab Sample ID:	280-85171-7		
Client ID:	SB006-0.5				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	16
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		
Column:		Detector	MS QQQ		

8 Perfluoroheptanoic acid, CAS: 375-85-9

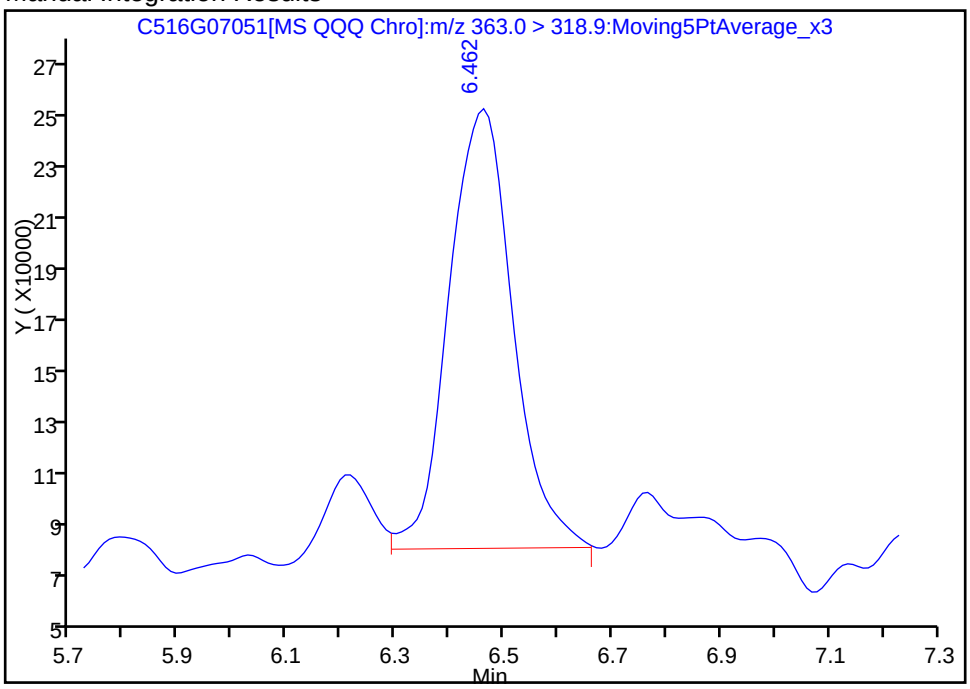
Processing Integration Results

RT: 6.46
Area: 1718128
Amount: 0.713507
Amount Units: ug/L



Manual Integration Results

RT: 6.46
Area: 1368620
Amount: 0.561561
Amount Units: ug/L



Reviewer: fiedlerh, 08-Jul-2016 08:13:57
Audit Action: Manually Integrated
Audit Reason: Baseline

Manual Integration/User Assign Peak Report

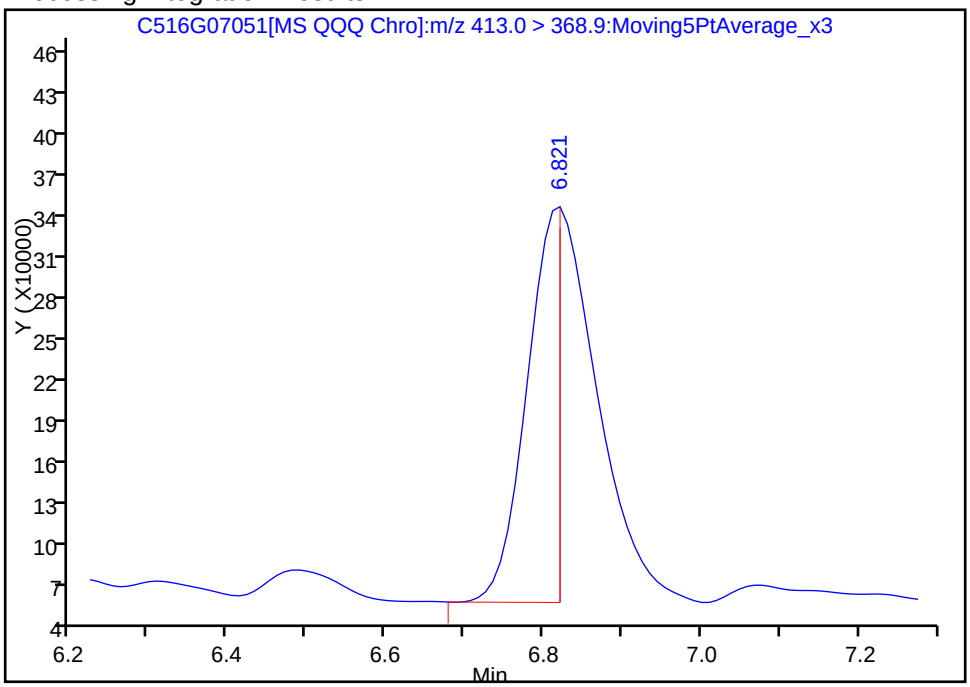
TestAmerica Denver

Data File:	\\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07051.d				
Injection Date:	07-Jul-2016 16:30:45	Instrument ID:	LC_LCMS5		
Lims ID:	280-85171-A-7-A	Lab Sample ID:	280-85171-7		
Client ID:	SB006-0.5				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	16
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		
Column:		Detector	MS QQQ		

16 Perfluorooctanoic acid, CAS: 335-67-1

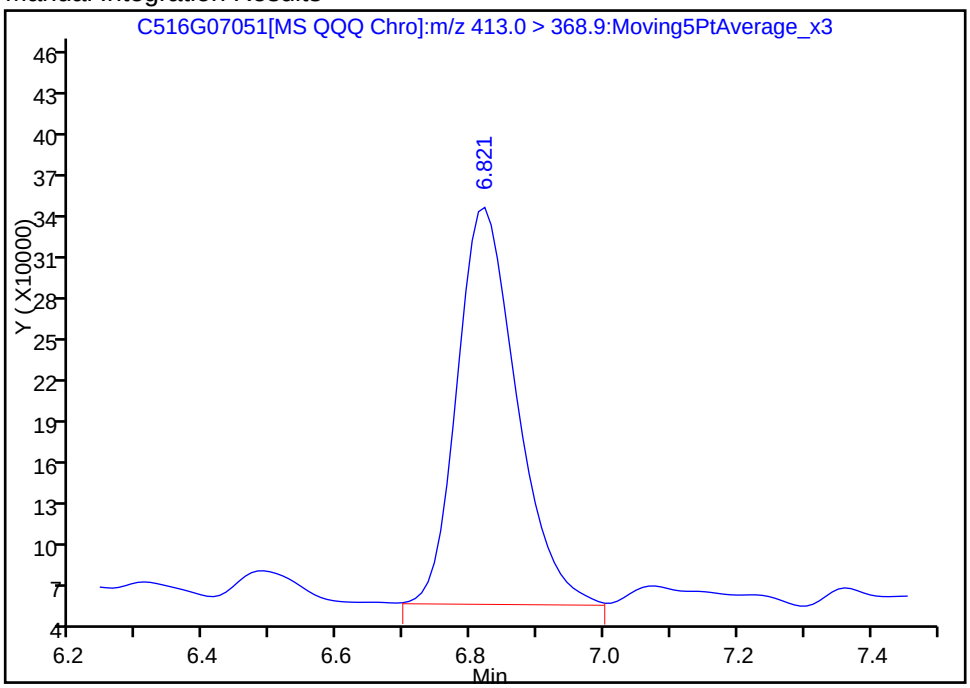
Processing Integration Results

RT: 6.82
Area: 803171
Amount: 0.220944
Amount Units: ug/L



Manual Integration Results

RT: 6.82
Area: 1781996
Amount: 0.577671
Amount Units: ug/L



Reviewer: fiedlerh, 08-Jul-2016 08:13:57
Audit Action: Manually Integrated
Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB006-0.5 DL | Lab Sample ID: 280-85171-7 DL

Matrix: Solid | Lab File ID: PC516G08012.d

Analysis Method: DV-LC-0012 | Date Collected: 06/30/2016 00:30

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.42(g) | Date Analyzed: 07/08/2016 13:50

Con. Extract Vol.: 20(mL) | Dilution Factor: 2

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 19.9 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 333083 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	355	D	1.92	0.34

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	103	D	57-153
STL01054	13C8 PFOS	110	D	70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08012.d
Lims ID: 280-85171-A-7-A Lab Sample ID: 280-85171-7
Client ID: SB006-0.5
Sample Type: Client
Inject. Date: 08-Jul-2016 13:50:28 ALS Bottle#: 0 Worklist Smp#: 7
Injection Vol: 25.0 ul Dil. Factor: 2.0000
Sample Info: 280-85171-A-7-A, Sample
Misc. Info.: 2x
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 11-Jul-2016 11:14:47 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK031

First Level Reviewer: fiedlerh Date: 11-Jul-2016 10:49:39

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.276	4.219	0.057		13676674	5.00			
4 Perfluorobutane Sulfonate									R
298.9 > 79.9	5.402	5.355	0.047	0.859	102414	0.0890			R
298.9 > 98.9	5.412	5.355	0.057	0.860	57412		1.78(1.80-3.35)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.866	5.837	0.029		9659608	5.00			
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.291	6.272	0.019		1146219	4.73			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.291	6.272	0.019	1.000	2355373	2.45			R
398.9 > 98.9	6.291	6.272	0.019	1.000	767618		3.07(1.30-2.41)		
8 Perfluoroheptanoic acid									R
363.0 > 318.9	6.263	6.273	-0.010	0.944	1085983	0.3859			R
363.0 > 168.9	6.273	6.273	0.0	0.946	114288		9.50(3.35-6.23)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.631	6.612	0.019	1.000	12257621	5.05			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.631	6.612	0.019		14936719	5.00			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.641	6.613	0.028	1.001	972876	0.2431			
413.0 > 169.0	6.641	6.613	0.028	1.001	279594		3.48(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.913	6.884	0.029	1.000	2445978	5.10			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.914	6.885	0.029	1.000	67450375	74.1			R
498.9 > 98.9	6.914	6.885	0.029	1.000	22773873		2.96(1.31-2.43)		
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.913	6.885	0.028		3737991	4.78			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.933	6.905	0.028		10530214	5.00			
20 Perfluorononanoic acid									
463.0 > 418.9	6.933	6.905	0.028	1.000	410635	0.1309			
463.0 > 218.9	6.933	6.905	0.028	1.000	46422		8.85(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.187	7.158	0.029		12527940	5.00			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.395	7.376	0.019		7846790	5.00			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.583	7.555	0.029		15331508	5.00			
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.605	7.576	0.029		9253915	5.00			

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Report Date: 11-Jul-2016 11:14:53 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08012.d

Injection Date: 08-Jul-2016 13:50:28 Instrument ID: LC_LCMS5

Lims ID: 280-85171-A-7-A Lab Sample ID: 280-85171-7

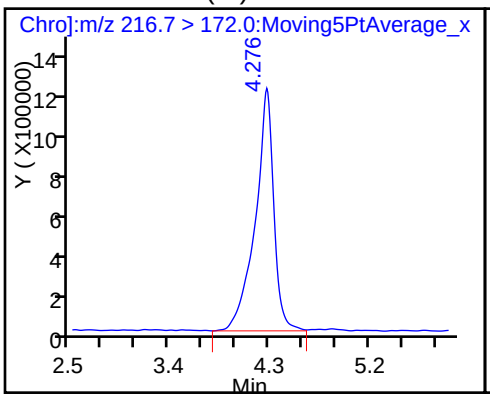
Client ID: SB006-0.5

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 7

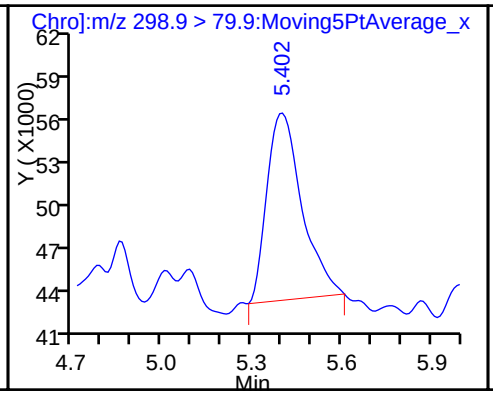
Injection Vol: 25.0 ul Dil. Factor: 2.0000

Method: 8321_PFC Limit Group: LC - PFC

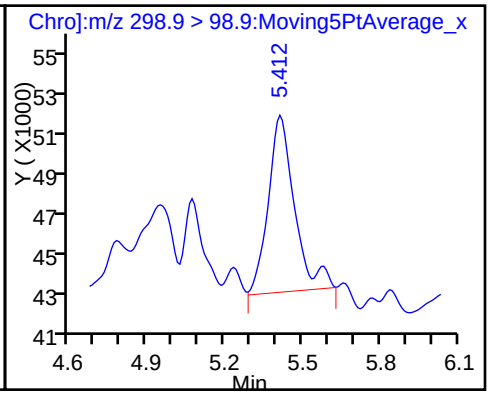
* 1 13C4 PFBA (IS)



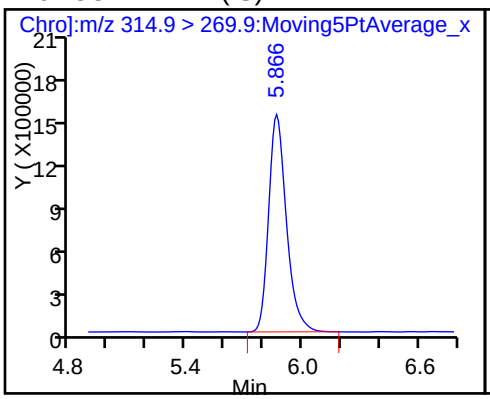
4 Perfluorobutane Sulfonate



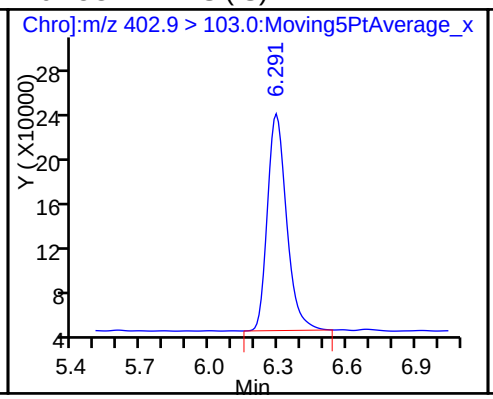
4 Perfluorobutane Sulfonate



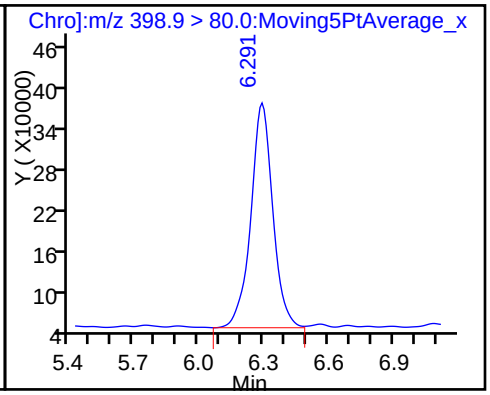
* 6 13C2 PFHxA (IS)



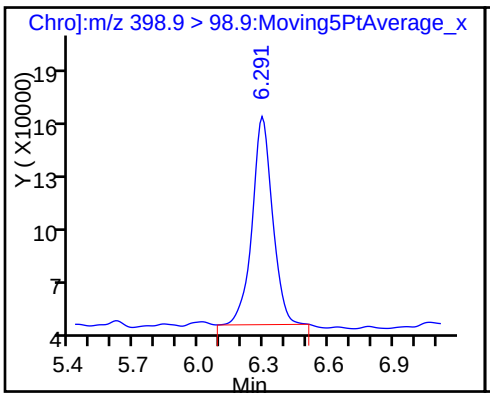
* 9 18O2 PFHxS (IS)



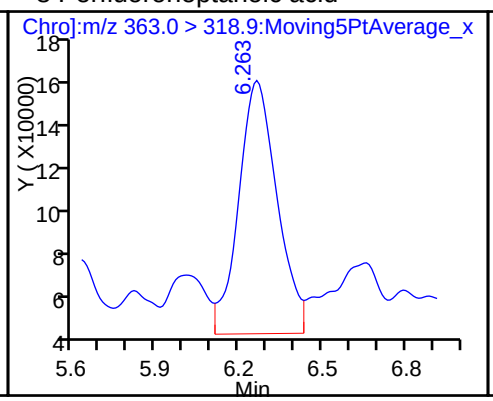
10 Perfluorohexane Sulfonate



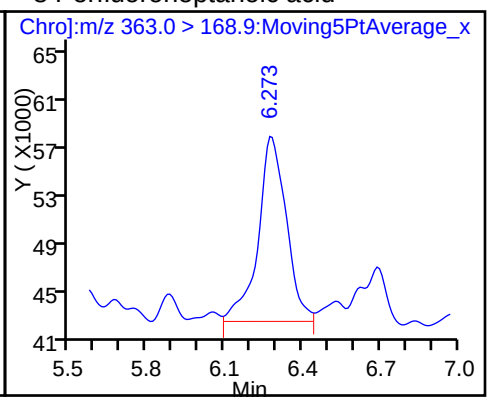
10 Perfluorohexane Sulfonate



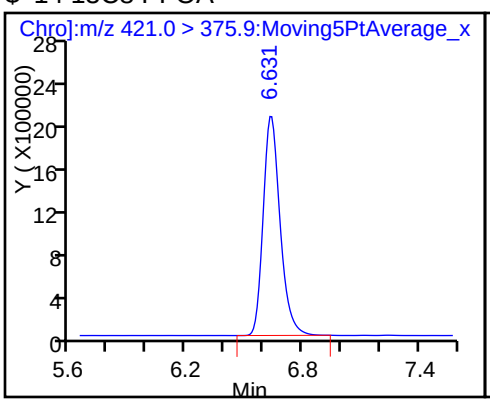
8 Perfluoroheptanoic acid



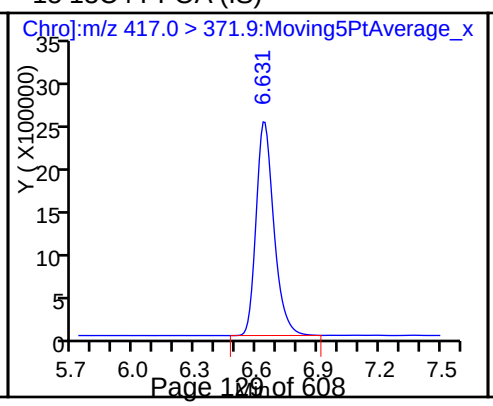
8 Perfluoroheptanoic acid



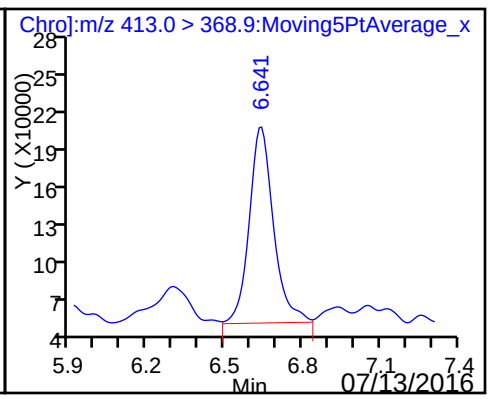
$ 14 13C8 PFOA



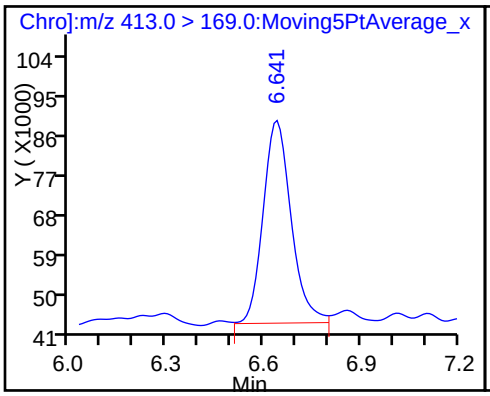
* 15 13C4 PFOA (IS)



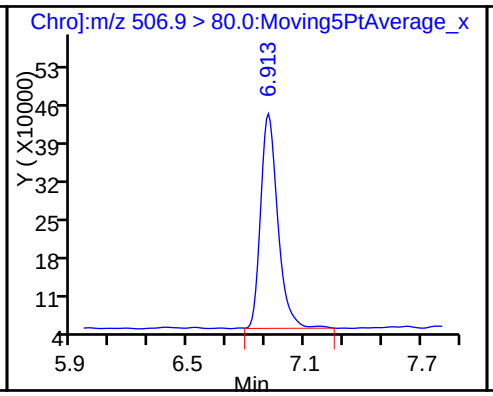
16 Perfluorooctanoic acid



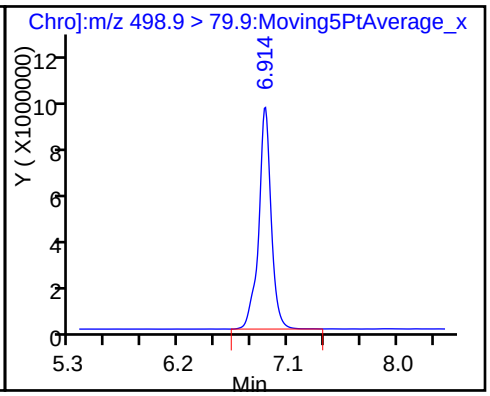
16 Perfluorooctanoic acid



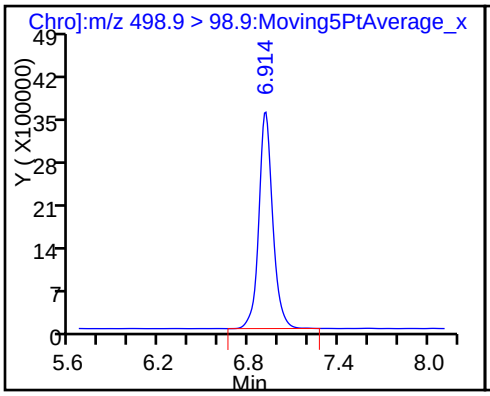
$ 18 13C8 PFOS



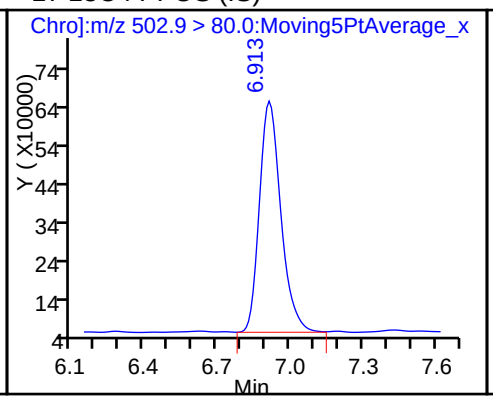
19 Perfluorooctane sulfonic acid



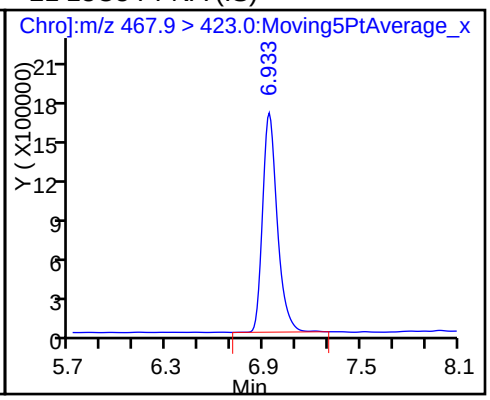
19 Perfluorooctane sulfonic acid



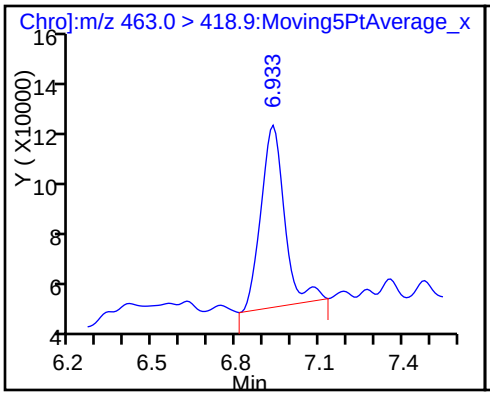
* 17 13C4 PFOS (IS)



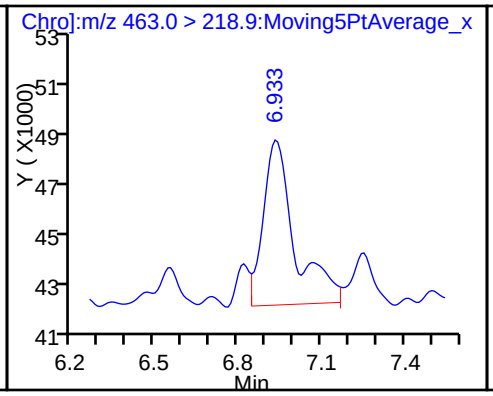
* 21 13C5 PFNA (IS)



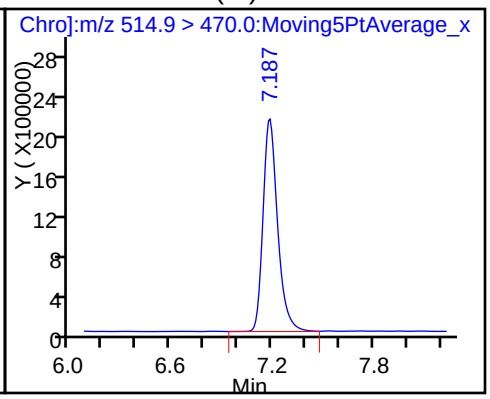
20 Perfluorononanoic acid



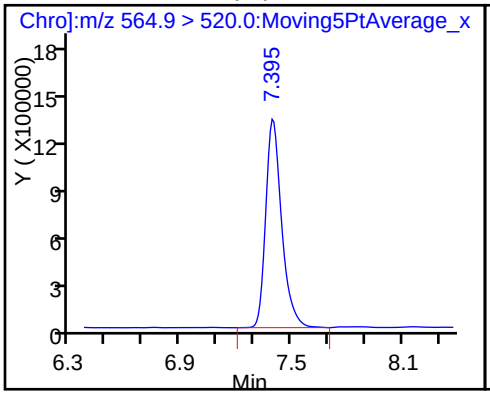
20 Perfluorononanoic acid



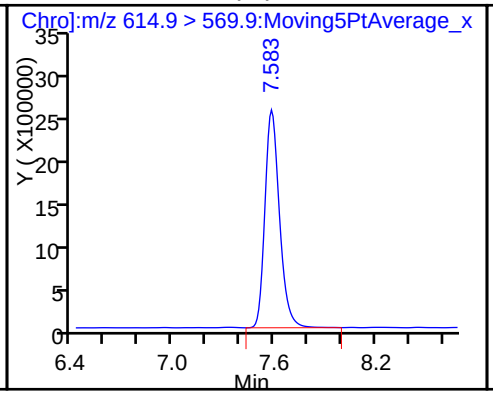
* 22 13C2 PFDA (IS)



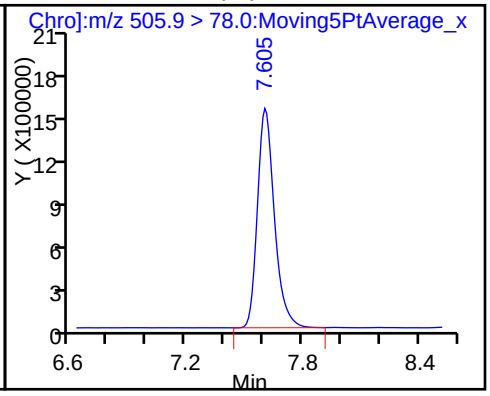
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB006-8.0 | Lab Sample ID: 280-85171-8

Matrix: Solid | Lab File ID: PC516G07052.d

Analysis Method: DV-LC-0012 | Date Collected: 06/30/2016 01:40

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.54(g) | Date Analyzed: 07/07/2016 16:43

Con. Extract Vol.: 20(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 7.1 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 332793 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.14	U	0.82	0.14
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.12	U	0.82	0.12
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.29	U	0.82	0.29
375-95-1	Perfluorononanoic acid (PFNA)	0.22	U	0.82	0.22
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.14	U	0.82	0.14
335-67-1	Perfluorooctanoic acid (PFOA)	0.23	U	0.82	0.23

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	107		57-153
STL01054	13C8 PFOS	106		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07052.d
Lims ID: 280-85171-A-8-A Lab Sample ID: 280-85171-8
Client ID: SB006-8.0
Sample Type: Client
Inject. Date: 07-Jul-2016 16:43:06 ALS Bottle#: 0 Worklist Smp#: 17
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85171-A-8-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 08-Jul-2016 09:16:01 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK002

First Level Reviewer: fiedlerh Date: 08-Jul-2016 08:14:10

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.560	4.579	-0.019		28740044	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.630				ND			
298.9 > 98.9		5.630							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	6.084	6.084	0.0		23599405	10.0			
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.509	6.499	0.010		2533281	9.46			
10 Perfluorohexane Sulfonate									
398.9 > 80.0		6.490				ND			
398.9 > 98.9		6.490							
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.491				ND			
363.0 > 168.9		6.491							
$ 14 13C8 PFOA									
421.0 > 375.9	6.840	6.830	0.010	1.000	28573284	10.4			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.840	6.830	0.010		33827838	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9		6.831				ND			
413.0 > 169.0		6.831							
$ 18 13C8 PFOS									
506.9 > 80.0	7.102	7.093	0.009	1.001	6018036	9.88			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	7.093	7.093	0.0		9524730	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9		7.093				ND			
498.9 > 98.9		7.093							

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
20 Perfluorononanoic acid									
463.0 > 418.9		7.123				ND			
463.0 > 218.9		7.123							
* 21 13C5 PFNA (IS)									
467.9 > 423.0	7.123	7.123	0.0		27519119	10.0			
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.348	7.357	-0.009		30757562	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.556	7.556	0.0		18763600	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.725	7.734	-0.009		40613362	10.0			
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.775	7.775	0.0		26618579	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

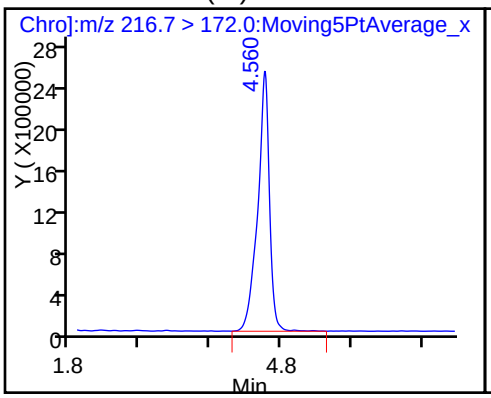
Report Date: 08-Jul-2016 09:16:16 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

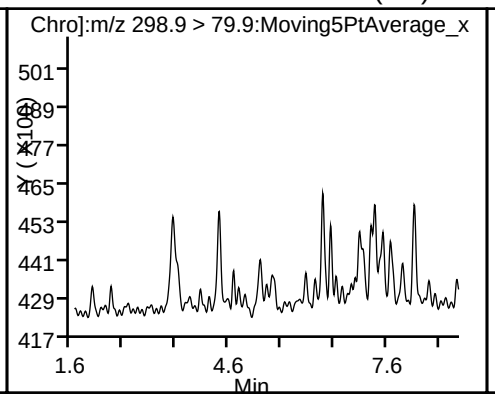
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07052.d

Injection Date:	07-Jul-2016 16:43:06	Instrument ID:	LC_LCMS5		
Lims ID:	280-85171-A-8-A	Lab Sample ID:	280-85171-8		
Client ID:	SB006-8.0				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	17
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

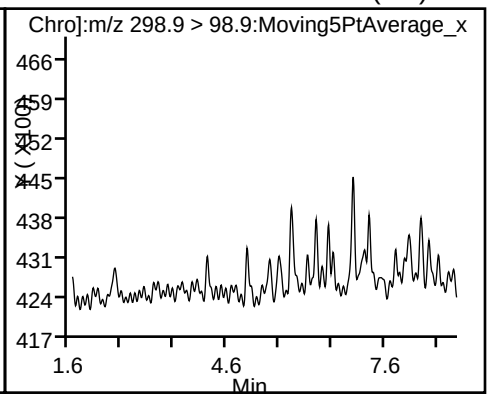
* 1 13C4 PFBA (IS)



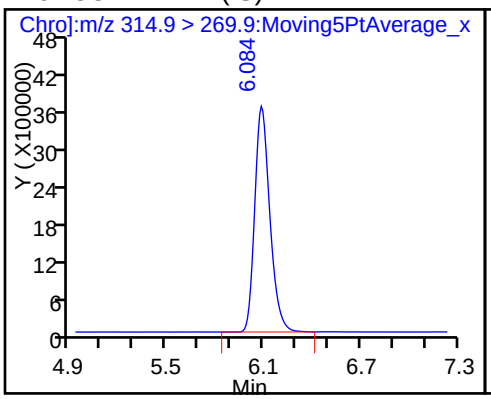
4 Perfluorobutane Sulfonate (ND)



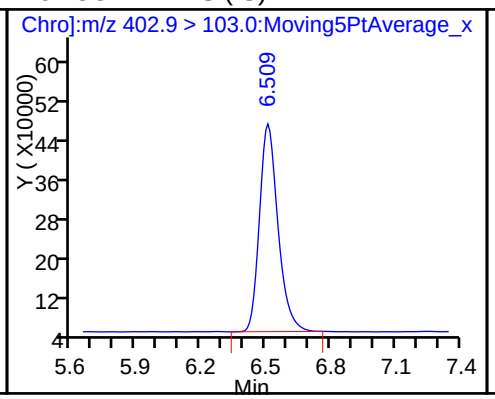
4 Perfluorobutane Sulfonate (ND)



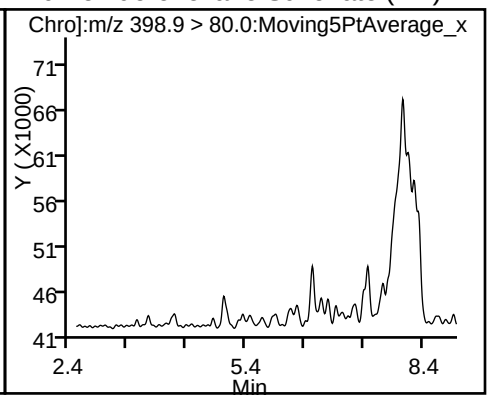
* 6 13C2 PFHxA (IS)



* 9 18O2 PFHxS (IS)



10 Perfluorohexane Sulfonate (ND)



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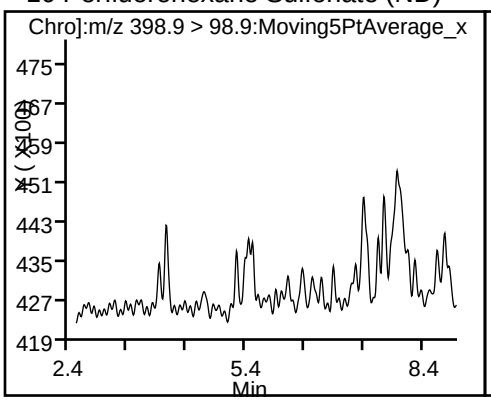
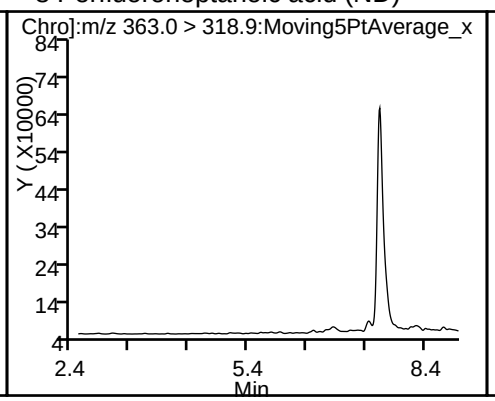
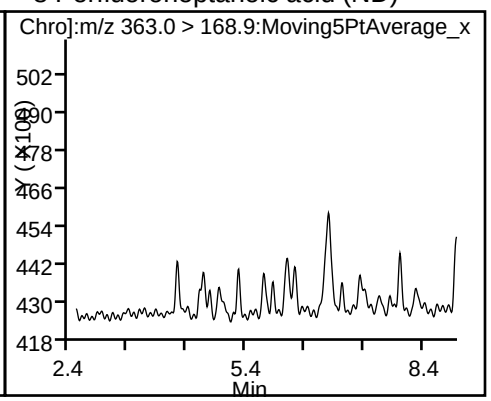


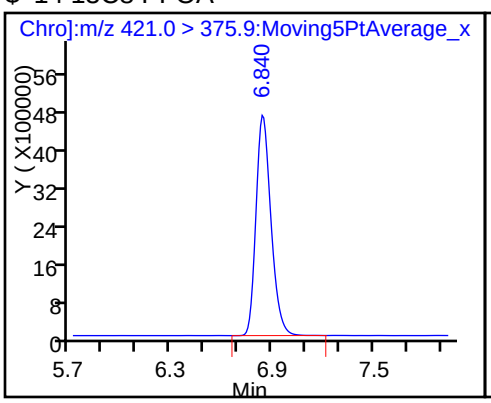
8 Perfluoroheptanoic acid (ND)



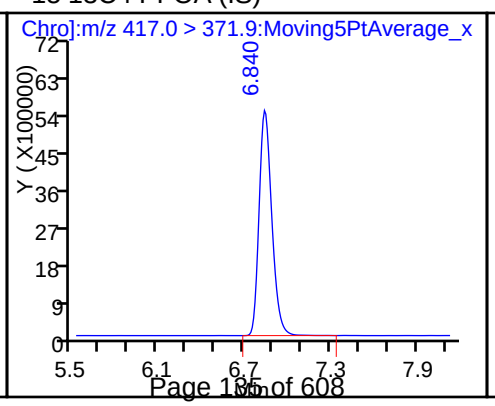
8 Perfluoroheptanoic acid (ND)



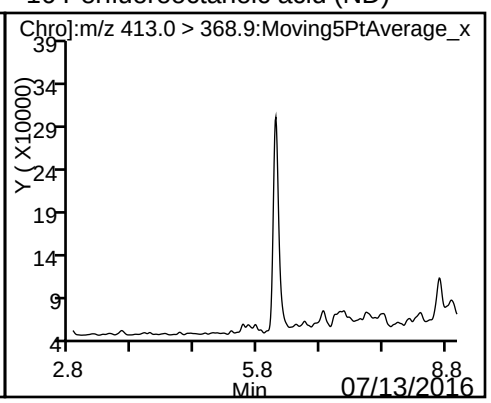
$ 14 13C8 PFOA



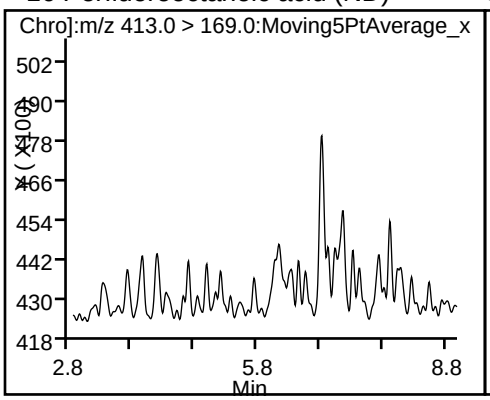
* 15 13C4 PFOA (IS)



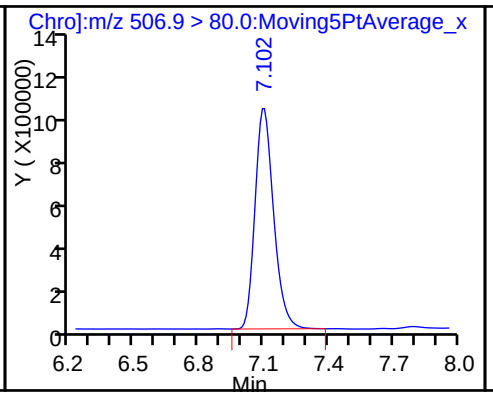
16 Perfluorooctanoic acid (ND)



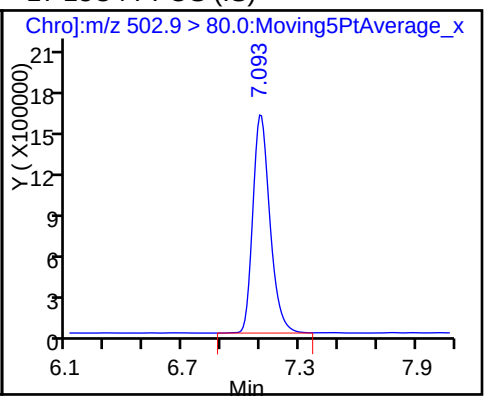
16 Perfluorooctanoic acid (ND)



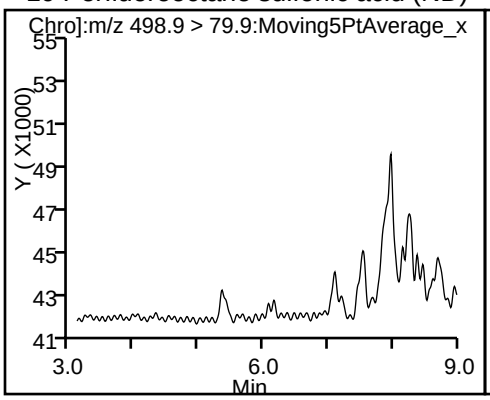
$ 18 13C8 PFOS



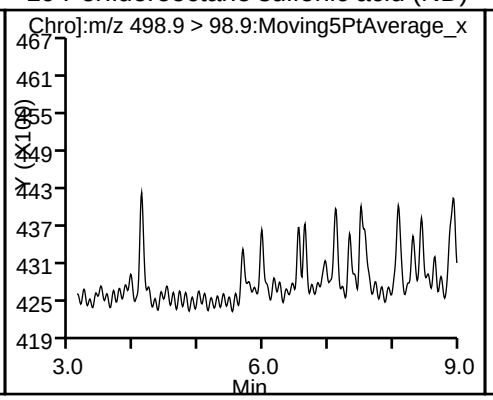
* 17 13C4 PFOS (IS)



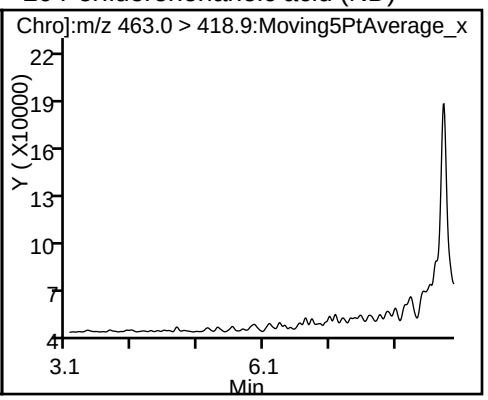
19 Perfluorooctane sulfonic acid (ND)



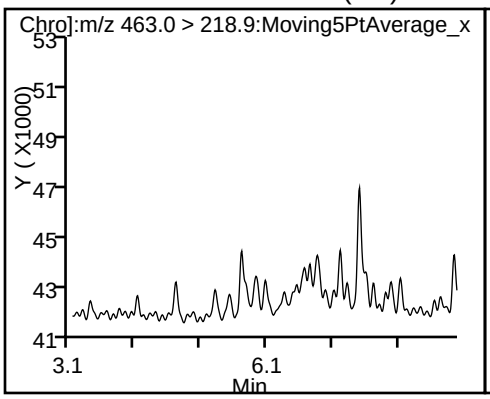
19 Perfluorooctane sulfonic acid (ND)



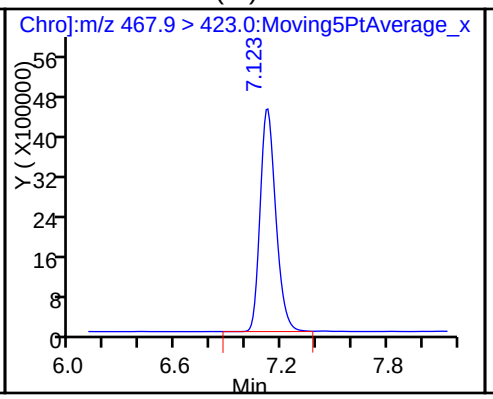
20 Perfluorononanoic acid (ND)



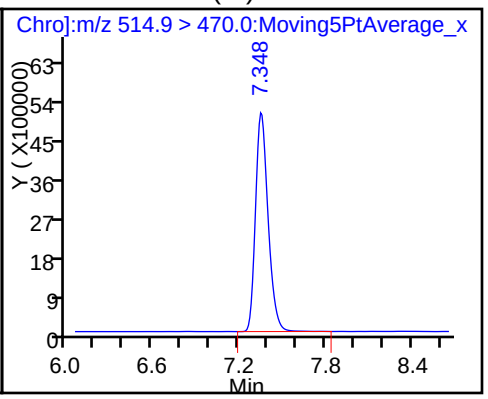
20 Perfluorononanoic acid (ND)



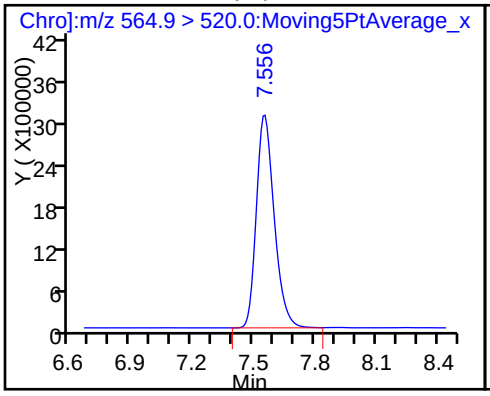
* 21 13C5 PFNA (IS)



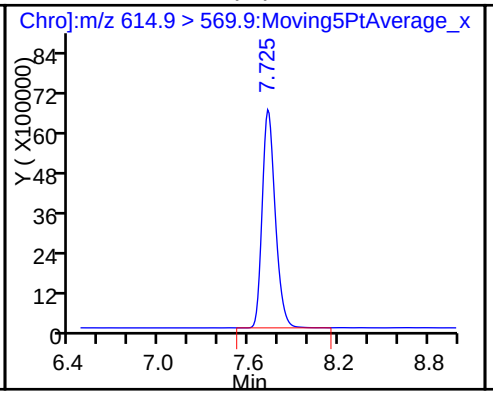
* 22 13C2 PFDA (IS)



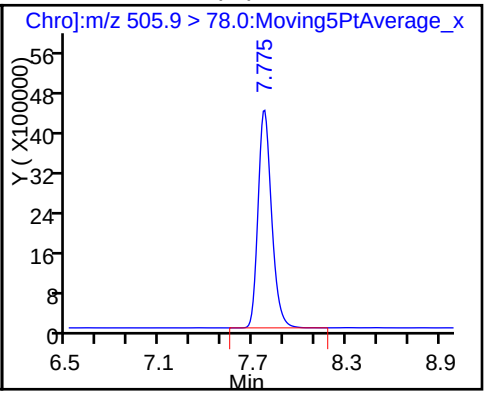
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB006-16.0 | Lab Sample ID: 280-85171-9

Matrix: Solid | Lab File ID: PC516G07053.d

Analysis Method: DV-LC-0012 | Date Collected: 06/30/2016 01:42

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.50(g) | Date Analyzed: 07/07/2016 16:55

Con. Extract Vol.: 20(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 7.3 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 332793 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.14	U	0.82	0.14
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.12	U	0.82	0.12
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.29	U	0.82	0.29
375-95-1	Perfluorononanoic acid (PFNA)	0.23	U	0.82	0.23
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.14	U	0.82	0.14
335-67-1	Perfluorooctanoic acid (PFOA)	0.24	U	0.82	0.24

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	104		57-153
STL01054	13C8 PFOS	91		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07053.d
Lims ID: 280-85171-A-9-A Lab Sample ID: 280-85171-9
Client ID: SB006-16.0
Sample Type: Client
Inject. Date: 07-Jul-2016 16:55:24 ALS Bottle#: 0 Worklist Smp#: 18
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85171-A-9-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 08-Jul-2016 09:16:01 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK002

First Level Reviewer: fiedlerh Date: 08-Jul-2016 08:14:25

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.560	4.579	-0.019		27237734	10.0			
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298.9 > 79.9		5.630				ND			
298.9 > 98.9		5.630							
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314.9 > 269.9	6.065	6.084	-0.019		21667187	10.0			
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417.0 > 371.9	6.821	6.830	-0.009		32127639	10.0			
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498.9 > 79.9		7.093				ND			
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463.0 > 218.9		7.123							
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467.9 > 423.0	7.104	7.123	-0.019		24971764	10.0			
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.338	7.357	-0.019		27087215	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.546	7.556	-0.010		17019620	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.716	7.734	-0.018		35458048	10.0			
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.756	7.775	-0.019		27398463	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

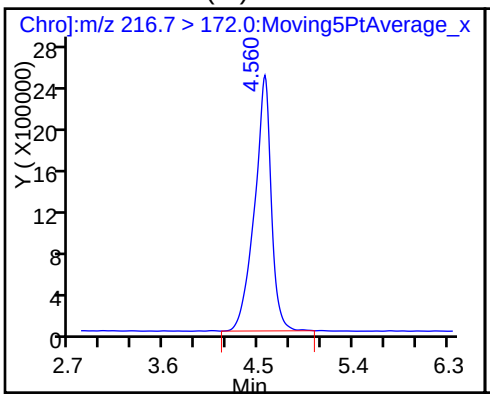
Report Date: 08-Jul-2016 09:16:19 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

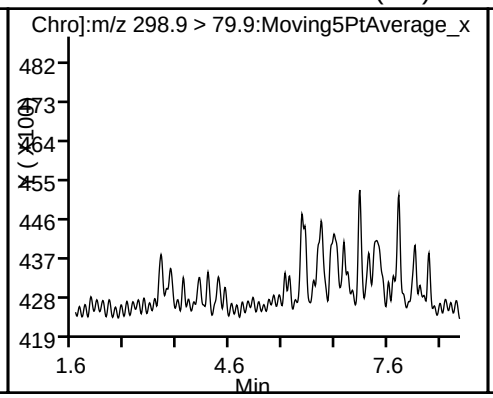
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07053.d

Injection Date:	07-Jul-2016 16:55:24	Instrument ID:	LC_LCMS5		
Lims ID:	280-85171-A-9-A	Lab Sample ID:	280-85171-9		
Client ID:	SB006-16.0				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	18
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

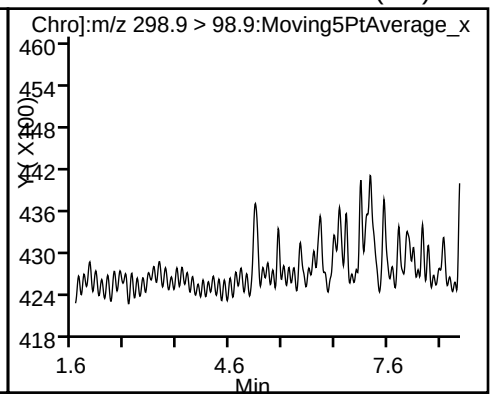
* 1 13C4 PFBA (IS)



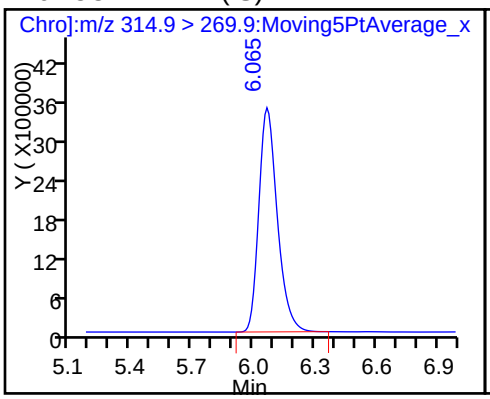
4 Perfluorobutane Sulfonate (ND)



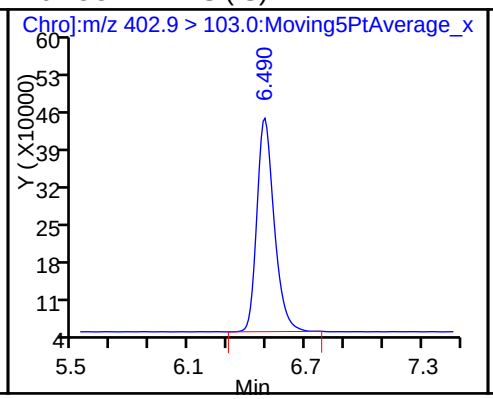
4 Perfluorobutane Sulfonate (ND)



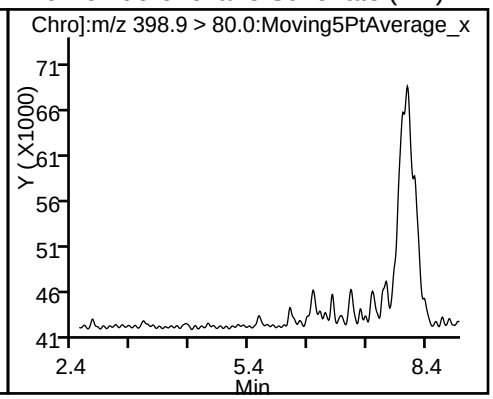
* 6 13C2 PFHxA (IS)



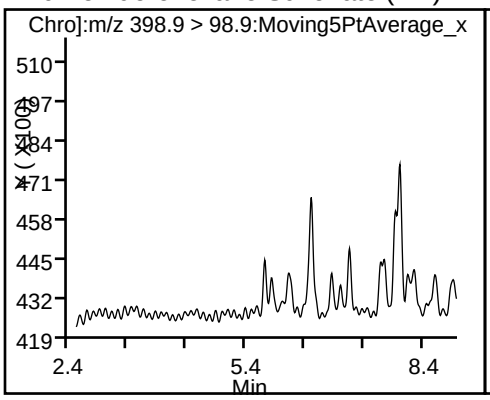
* 9 18O2 PFHxS (IS)



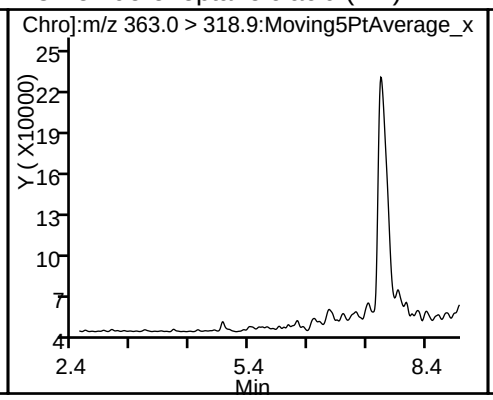
10 Perfluorohexane Sulfonate (ND)



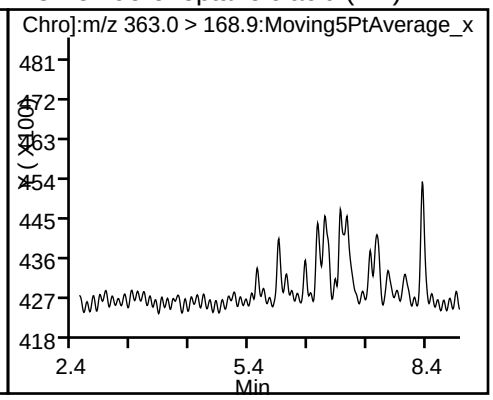
10 Perfluorohexane Sulfonate (ND)



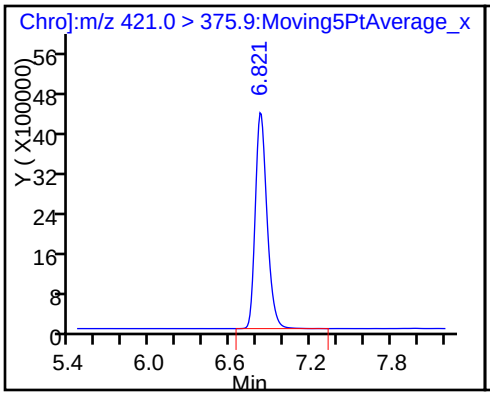
8 Perfluoroheptanoic acid (ND)



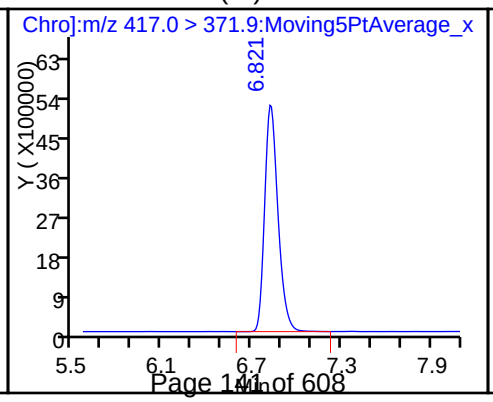
8 Perfluoroheptanoic acid (ND)



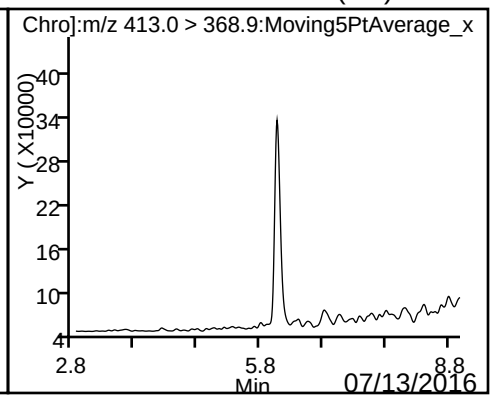
$ 14 13C8 PFOA



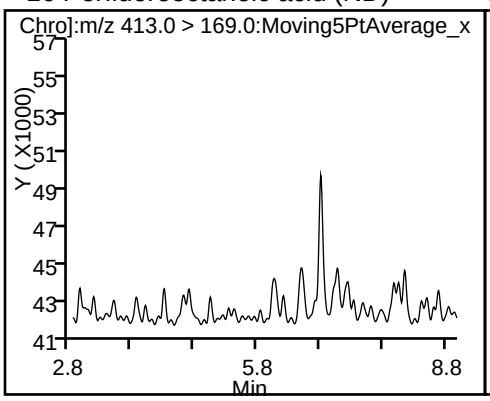
* 15 13C4 PFOA (IS)



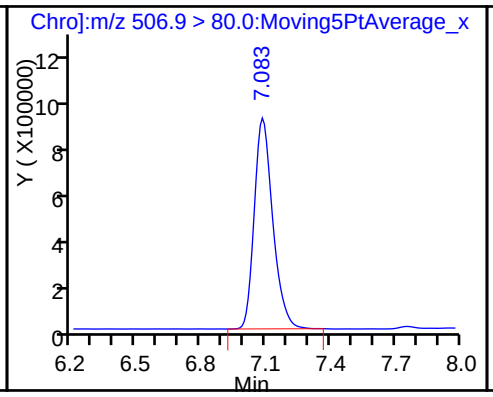
16 Perfluorooctanoic acid (ND)



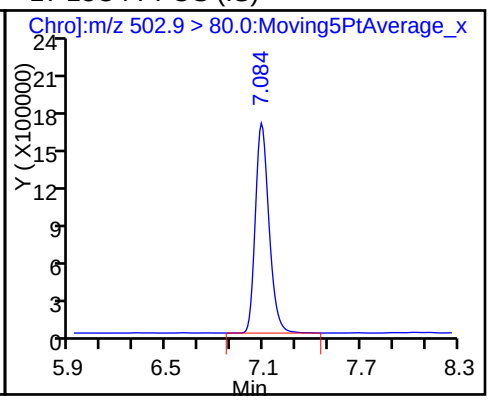
16 Perfluorooctanoic acid (ND)



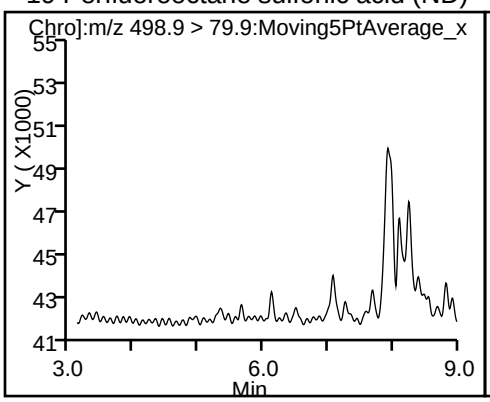
$ 18 13C8 PFOS



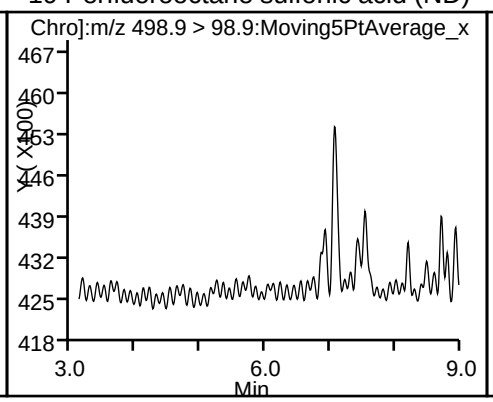
* 17 13C4 PFOS (IS)



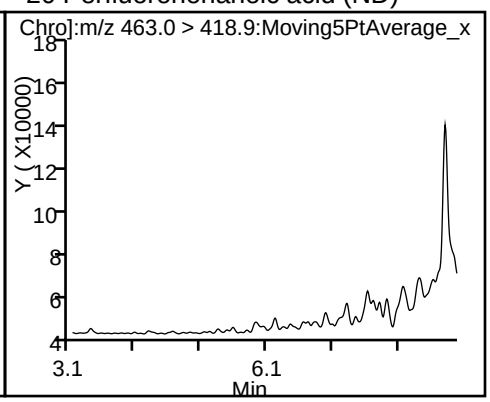
19 Perfluorooctane sulfonic acid (ND)



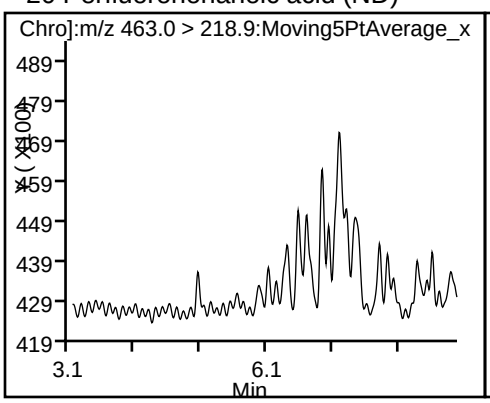
19 Perfluorooctane sulfonic acid (ND)



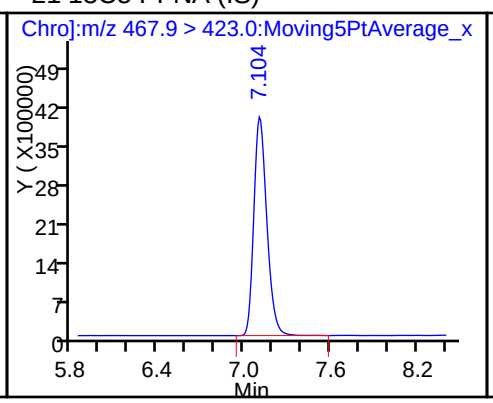
20 Perfluorononanoic acid (ND)



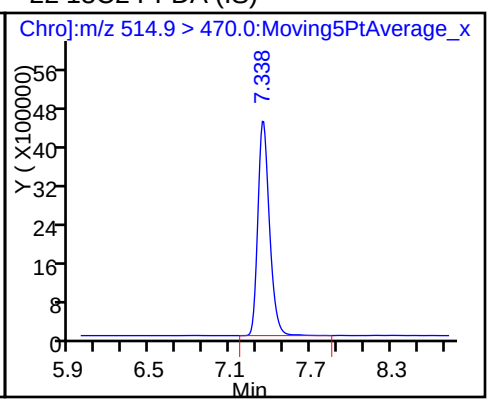
20 Perfluorononanoic acid (ND)



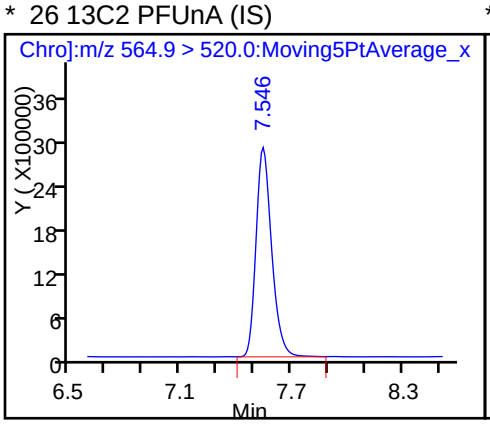
* 21 13C5 PFNA (IS)



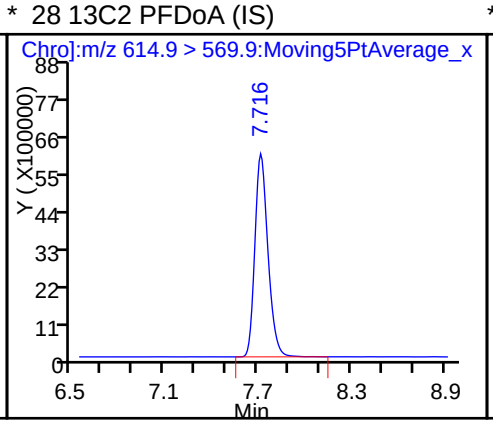
* 22 13C2 PFDA (IS)



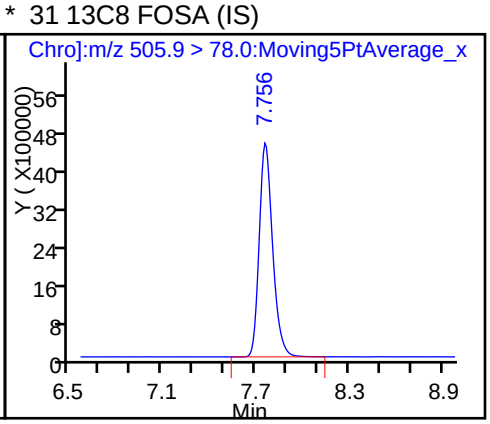
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB007-0.5 | Lab Sample ID: 280-85171-10

Matrix: Solid | Lab File ID: PC516G07054.d

Analysis Method: DV-LC-0012 | Date Collected: 06/30/2016 01:45

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.04(g) | Date Analyzed: 07/07/2016 17:07

Con. Extract Vol.: 20(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 10.5 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 332793 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.28	J	0.89	0.16
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.13	U	0.89	0.13
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	6.50		0.89	0.31
375-95-1	Perfluorononanoic acid (PFNA)	0.24	U	0.89	0.24
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	94.3		0.89	0.16
335-67-1	Perfluorooctanoic acid (PFOA)	0.29	J	0.89	0.26

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	103		57-153
STL01054	13C8 PFOS	106		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07054.d
Lims ID: 280-85171-A-10-A Lab Sample ID: 280-85171-10
Client ID: SB007-0.5
Sample Type: Client
Inject. Date: 07-Jul-2016 17:07:44 ALS Bottle#: 0 Worklist Smp#: 19
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85171-A-10-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 08-Jul-2016 09:16:01 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK002

First Level Reviewer: fiedlerh Date: 08-Jul-2016 08:15:34

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.550	4.579	-0.029		27953799	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.630	5.630	0.0	0.869	168392	0.1278			
298.9 > 98.9	5.611	5.630	-0.019	0.866	62219		2.71(1.80-3.35)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	6.055	6.084	-0.029		23129708	10.0			
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.480	6.499	-0.019		2547015	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.481	6.490	-0.009	1.000	3106628	2.92			R
398.9 > 98.9	6.490	6.490	0.0	1.001	1056355		2.94(1.30-2.41)		
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.491				ND			
363.0 > 168.9		6.491							
$ 14 13C8 PFOA									
421.0 > 375.9	6.830	6.830	0.0	1.000	26128192	10.1			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.830	6.830	0.0		31940196	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.831	6.831	0.0	1.000	662630	0.1288			
413.0 > 169.0	6.831	6.831	0.0	1.000	164089		4.04(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	7.093	7.093	0.0	1.000	5388746	9.83			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	7.093	7.093	0.0		8574019	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	7.093	7.093	0.0	1.000	44267252	42.4			R
498.9 > 98.9	7.093	7.093	0.0	1.000	14151499		3.13(1.31-2.43)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
20 Perfluorononanoic acid									
463.0 > 418.9		7.123				ND			
463.0 > 218.9		7.123							
* 21 13C5 PFNA (IS)									
467.9 > 423.0	7.123	7.123	0.0		22207487	10.0			
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.348	7.357	-0.009		27642295	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.556	7.556	0.0		17130711	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.725	7.734	-0.009		36875900	10.0			
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.775	7.775	0.0		26559408	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

R - Failed Signal Ratio Test

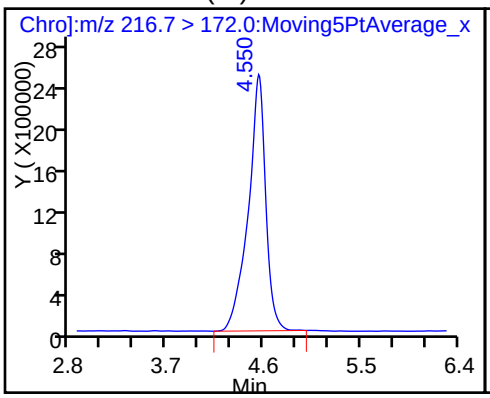
Report Date: 08-Jul-2016 09:16:26 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

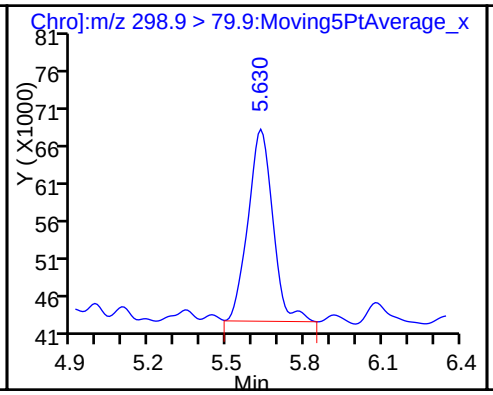
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07054.d

Injection Date:	07-Jul-2016 17:07:44	Instrument ID:	LC_LCMS5		
Lims ID:	280-85171-A-10-A	Lab Sample ID:	280-85171-10		
Client ID:	SB007-0.5				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	19
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

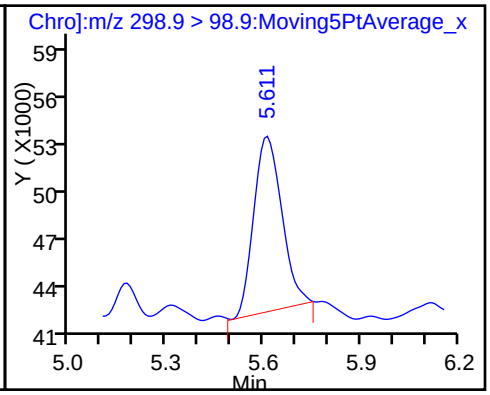
* 1 13C4 PFBA (IS)



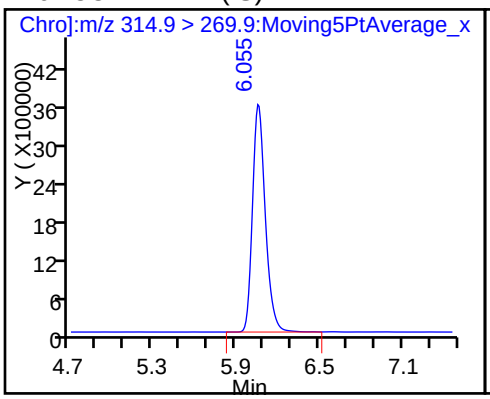
4 Perfluorobutane Sulfonate



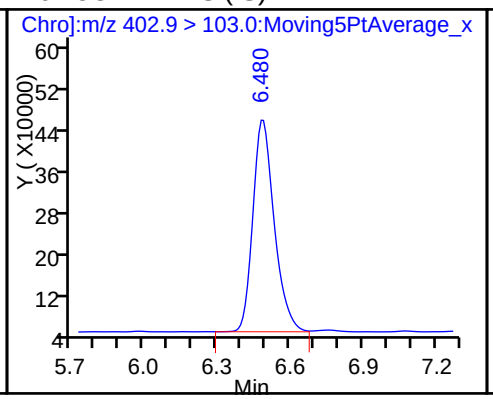
4 Perfluorobutane Sulfonate



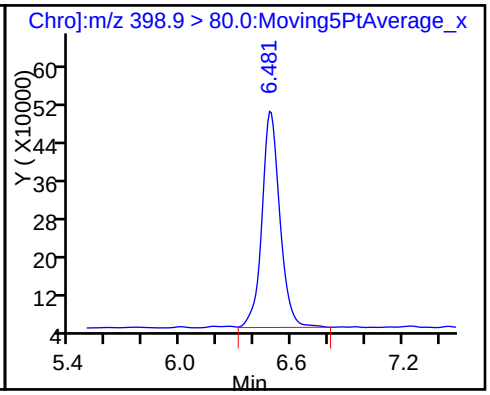
* 6 13C2 PFHxA (IS)



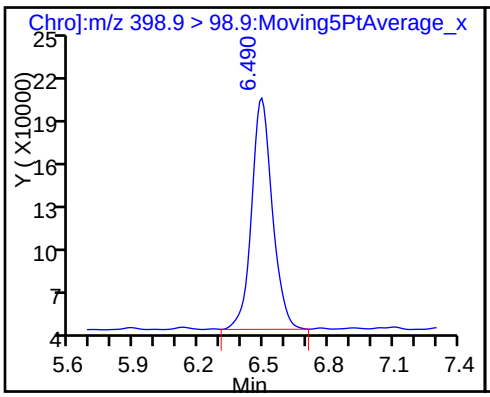
* 9 18O2 PFHxS (IS)



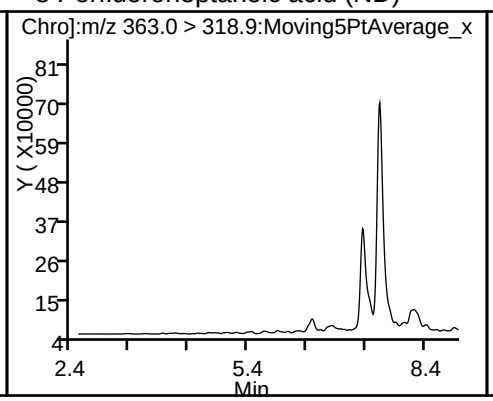
10 Perfluorohexane Sulfonate



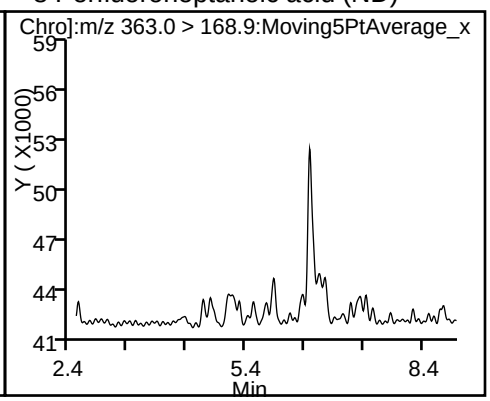
10 Perfluorohexane Sulfonate



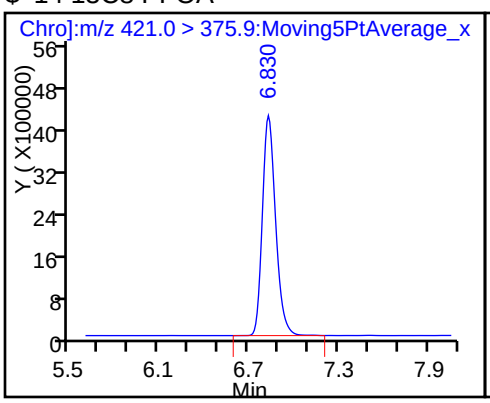
8 Perfluoroheptanoic acid (ND)



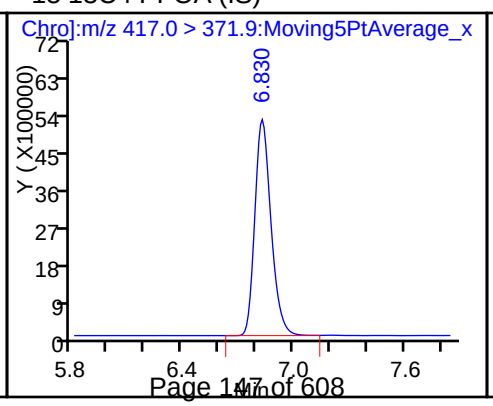
8 Perfluoroheptanoic acid (ND)



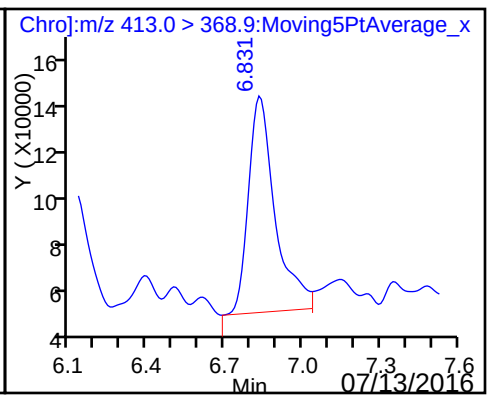
$ 14 13C8 PFOA



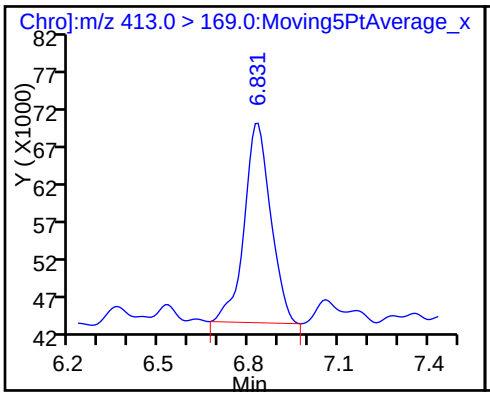
* 15 13C4 PFOA (IS)



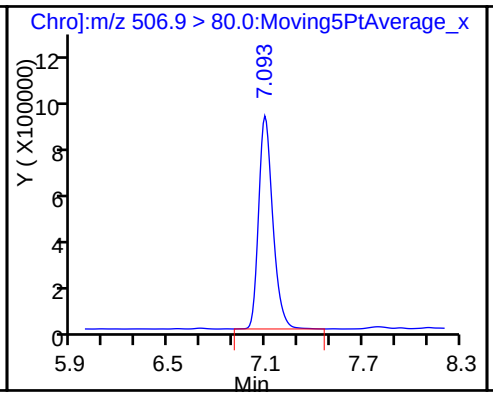
16 Perfluorooctanoic acid



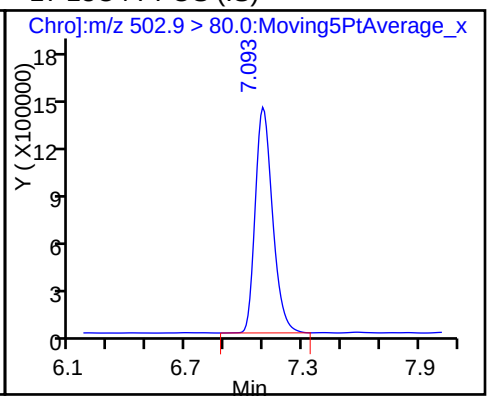
16 Perfluorooctanoic acid



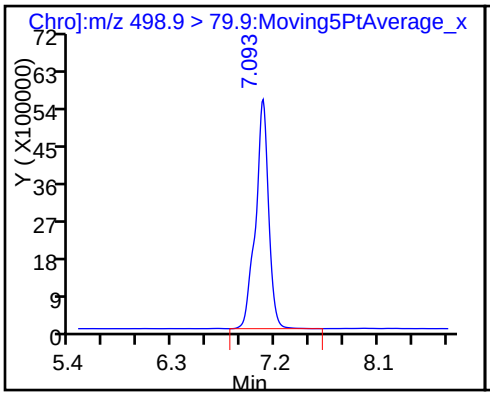
$ 18 13C8 PFOS



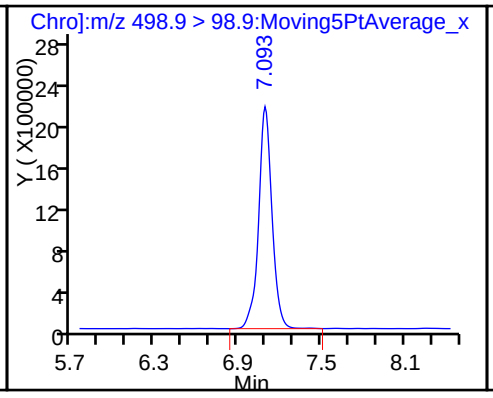
* 17 13C4 PFOS (IS)



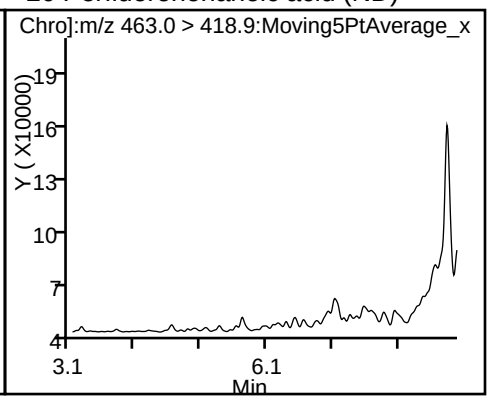
19 Perfluorooctane sulfonic acid



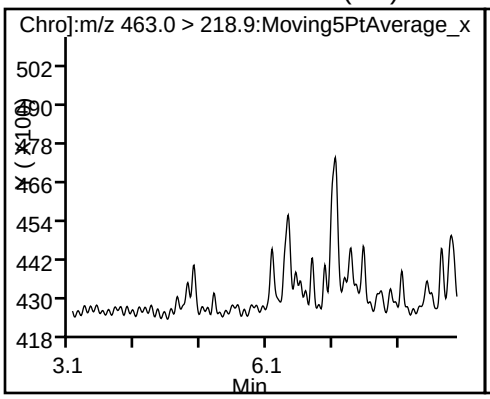
19 Perfluorooctane sulfonic acid



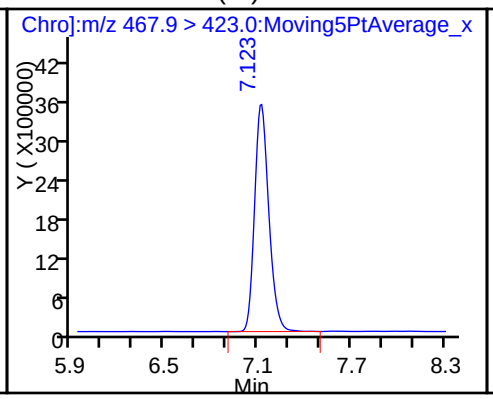
20 Perfluorononanoic acid (ND)



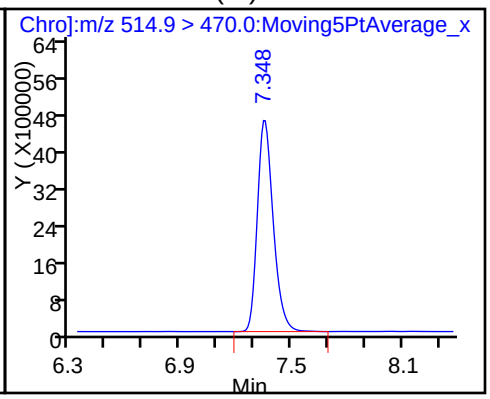
20 Perfluorononanoic acid (ND)



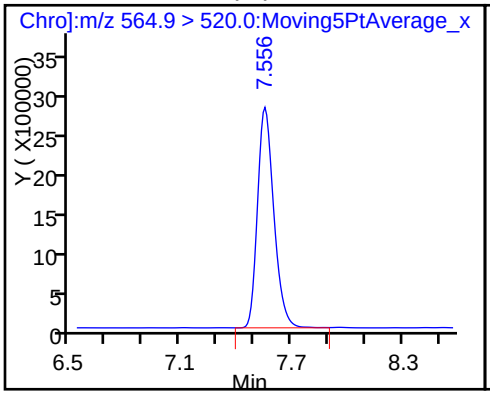
* 21 13C5 PFNA (IS)



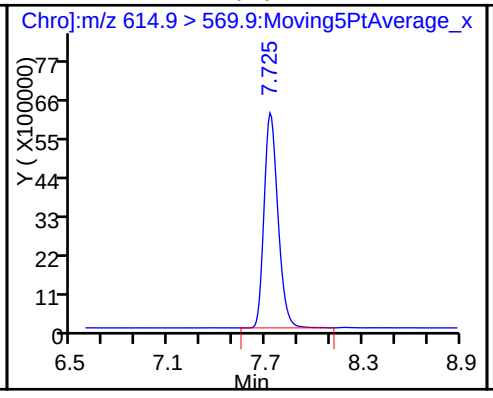
* 22 13C2 PFDA (IS)



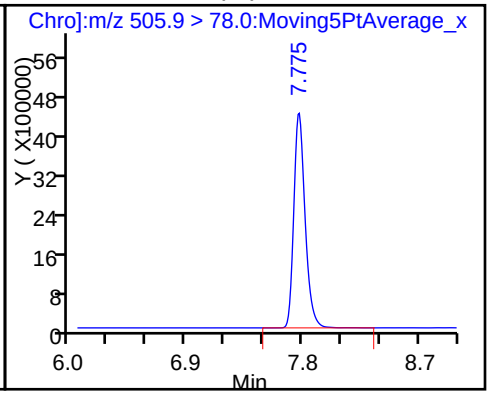
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB007-4.5 | Lab Sample ID: 280-85171-11

Matrix: Solid | Lab File ID: PC516G07055.d

Analysis Method: DV-LC-0012 | Date Collected: 06/30/2016 02:10

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.47(g) | Date Analyzed: 07/07/2016 17:20

Con. Extract Vol.: 20(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 11.3 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 332793 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.15	U	0.86	0.15
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.13	U	0.86	0.13
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	3.98		0.86	0.30
375-95-1	Perfluorononanoic acid (PFNA)	0.24	U	0.86	0.24
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	6.68		0.86	0.15
335-67-1	Perfluorooctanoic acid (PFOA)	0.25	U	0.86	0.25

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	107		57-153
STL01054	13C8 PFOS	106		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07055.d
Lims ID: 280-85171-A-11-A Lab Sample ID: 280-85171-11
Client ID: SB007-4.5
Sample Type: Client
Inject. Date: 07-Jul-2016 17:20:03 ALS Bottle#: 0 Worklist Smp#: 20
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85171-A-11-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 08-Jul-2016 09:16:01 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK002

First Level Reviewer: fiedlerh Date: 08-Jul-2016 08:16:00

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.513	4.579	-0.066		29602063	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.630				ND			
298.9 > 98.9		5.630							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	6.017	6.084	-0.067		21233081	10.0			
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.443	6.499	-0.056		2469639	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.433	6.490	-0.057	0.999	1935018	1.85			R
398.9 > 98.9	6.433	6.490	-0.057	0.999	586759		3.30(1.30-2.41)		
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.491				ND			
363.0 > 168.9		6.491							
$ 14 13C8 PFOA									
421.0 > 375.9	6.783	6.830	-0.047	1.000	28913398	10.5			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.783	6.830	-0.047		34044543	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9		6.831				ND			
413.0 > 169.0		6.831							
$ 18 13C8 PFOS									
506.9 > 80.0	7.045	7.093	-0.048	1.000	5432574	9.80			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	7.046	7.093	-0.047		8665115	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.951	7.093	-0.142	0.987	3348230	3.10			R
498.9 > 98.9	6.980	7.093	-0.113	0.991	553650		6.05(1.31-2.43)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
20 Perfluorononanoic acid									
463.0 > 418.9		7.123				ND			
463.0 > 218.9		7.123							
* 21 13C5 PFNA (IS)									
467.9 > 423.0	7.066	7.123	-0.057		27827484	10.0			
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.310	7.357	-0.047		27712130	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.518	7.556	-0.038		16704951	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.687	7.734	-0.047		36957016	10.0			
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.728	7.775	-0.047		23144302	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

R - Failed Signal Ratio Test

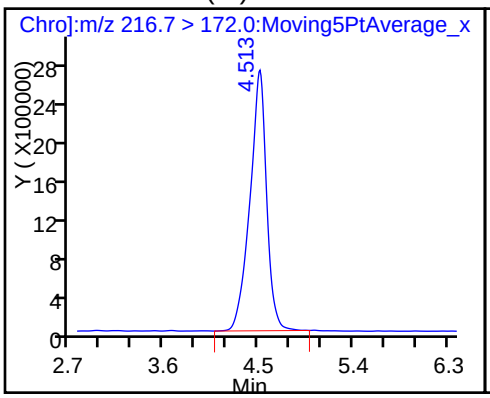
Report Date: 08-Jul-2016 09:16:29 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

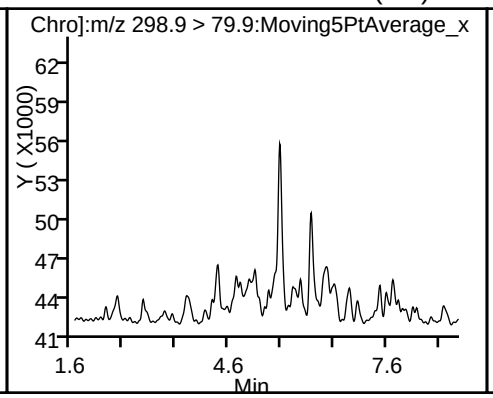
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07055.d

Injection Date:	07-Jul-2016 17:20:03	Instrument ID:	LC_LCMS5		
Lims ID:	280-85171-A-11-A	Lab Sample ID:	280-85171-11		
Client ID:	SB007-4.5				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	20
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

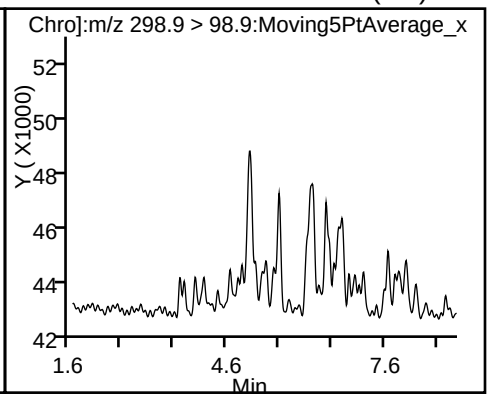
* 1 13C4 PFBA (IS)



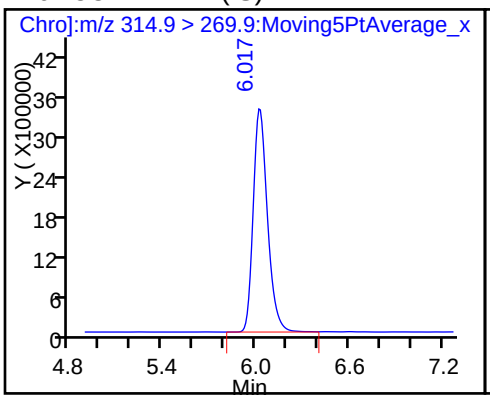
4 Perfluorobutane Sulfonate (ND)



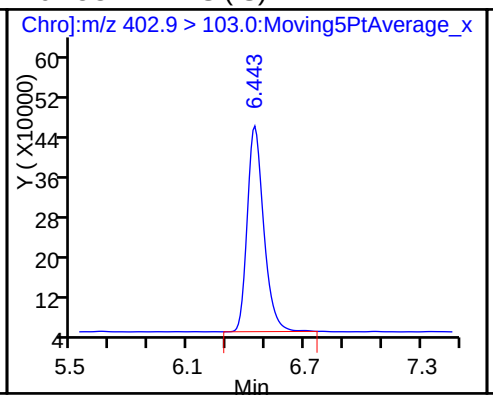
4 Perfluorobutane Sulfonate (ND)



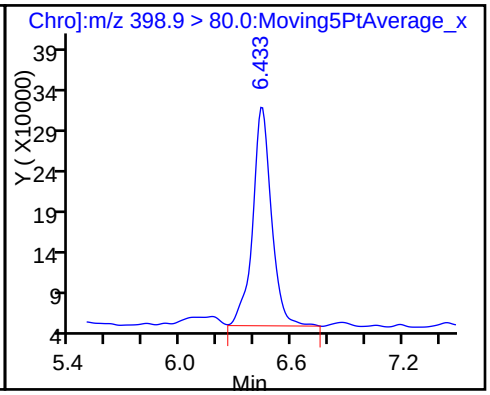
* 6 13C2 PFHxA (IS)



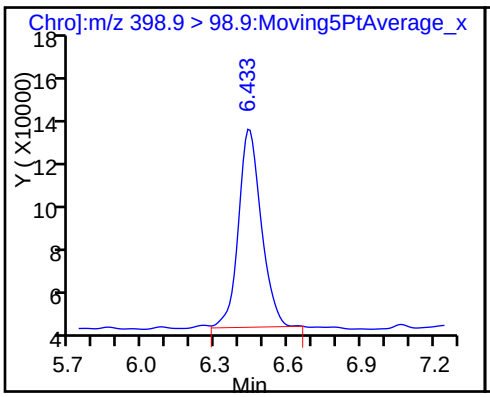
* 9 18O2 PFHxS (IS)



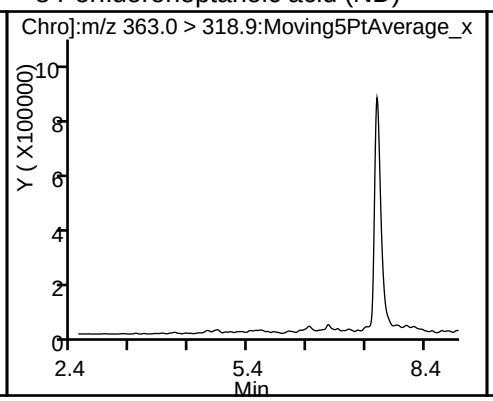
10 Perfluorohexane Sulfonate



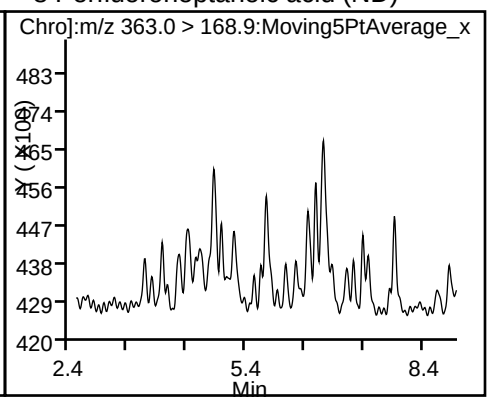
10 Perfluorohexane Sulfonate



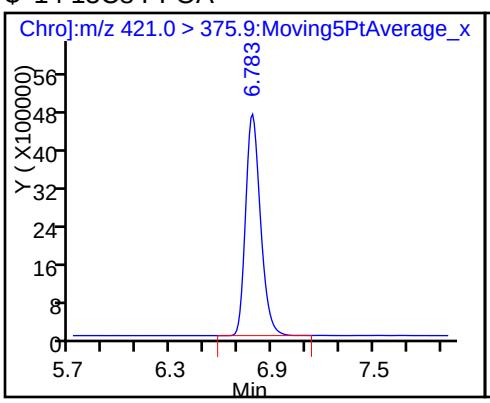
8 Perfluoroheptanoic acid (ND)



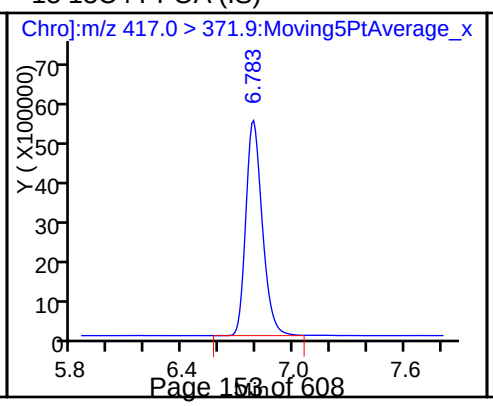
8 Perfluoroheptanoic acid (ND)



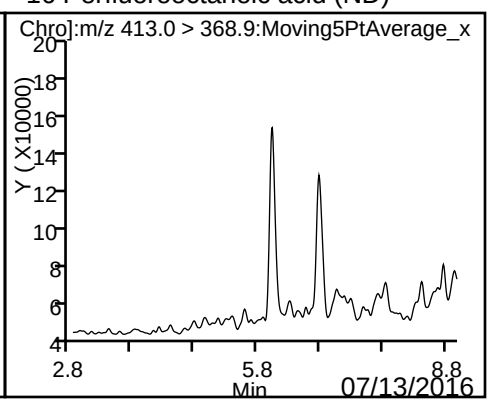
$ 14 13C8 PFOA



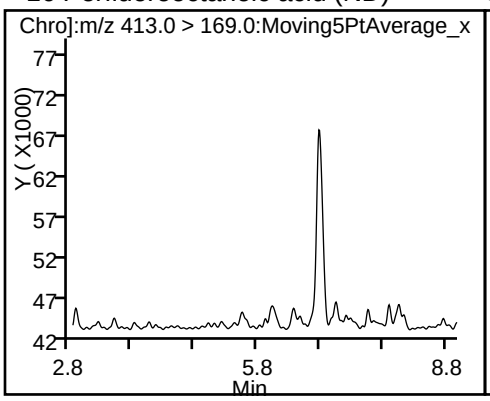
* 15 13C4 PFOA (IS)



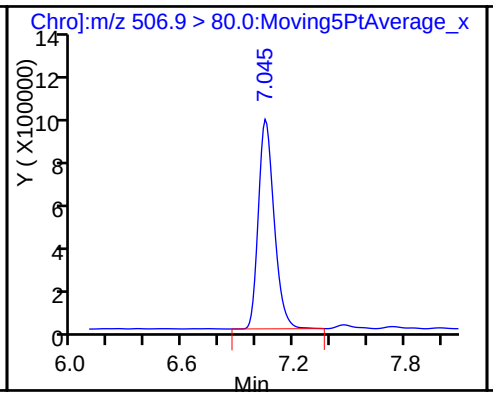
16 Perfluorooctanoic acid (ND)



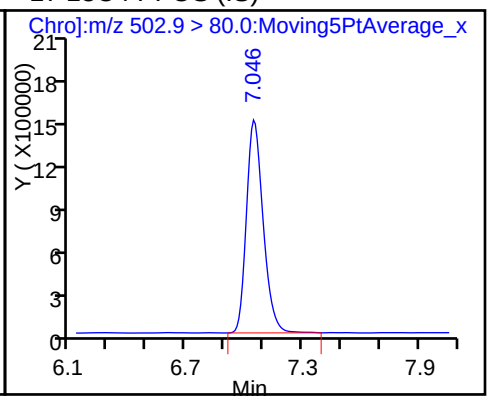
16 Perfluorooctanoic acid (ND)



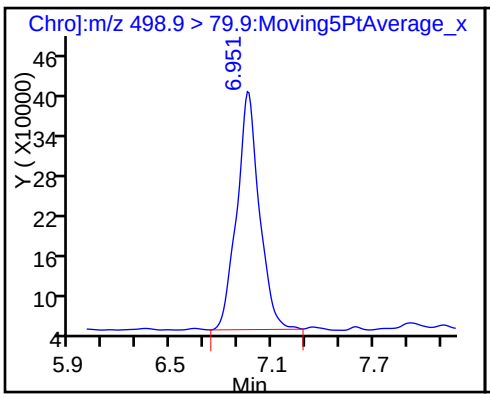
$ 18 13C8 PFOS



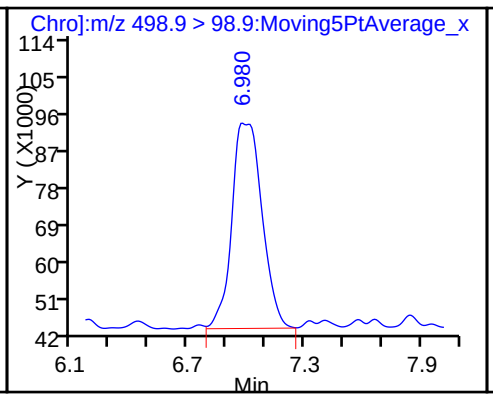
* 17 13C4 PFOS (IS)



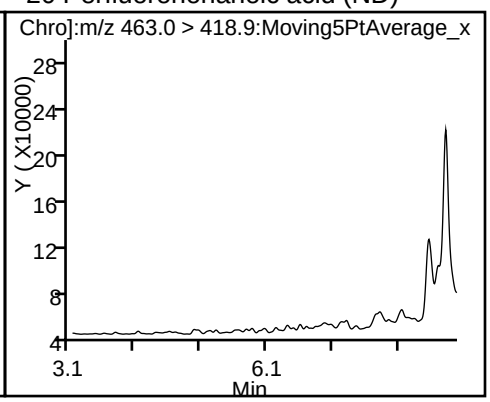
19 Perfluorooctane sulfonic acid



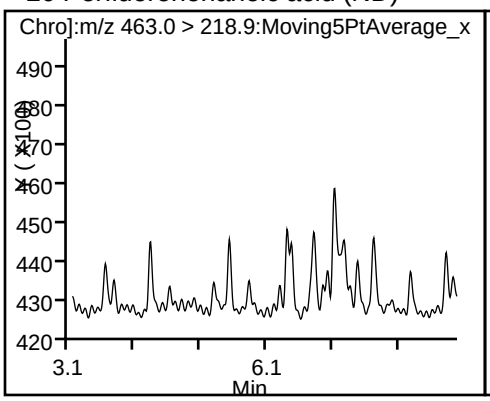
19 Perfluorooctane sulfonic acid



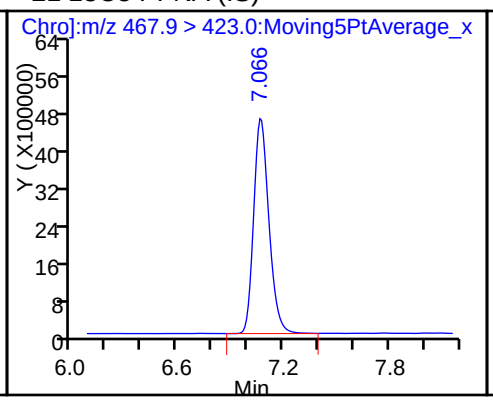
20 Perfluorononanoic acid (ND)



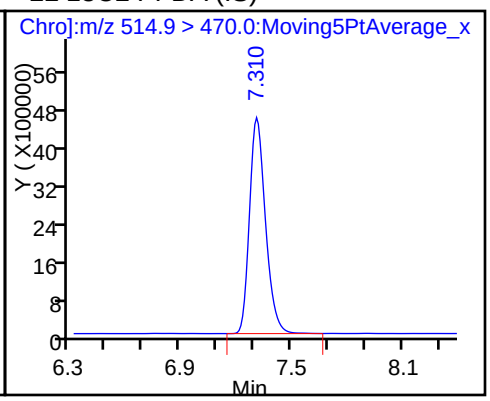
20 Perfluorononanoic acid (ND)



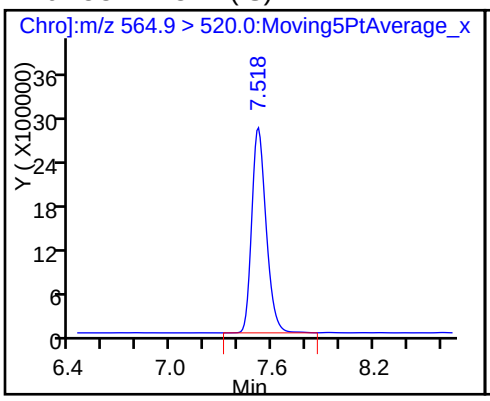
* 21 13C5 PFNA (IS)



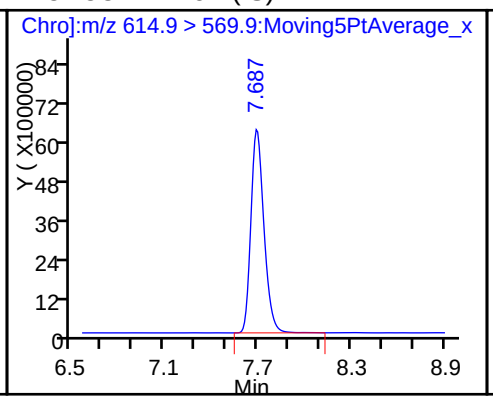
* 22 13C2 PFDA (IS)



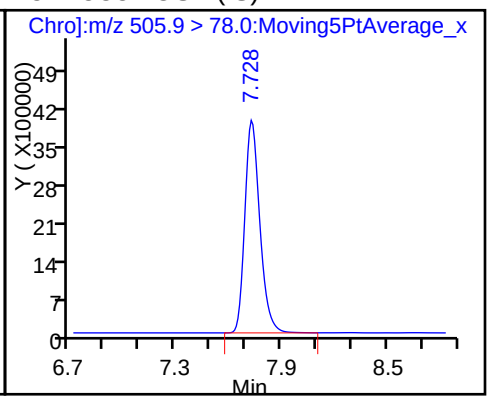
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB-DUP | Lab Sample ID: 280-85171-12

Matrix: Solid | Lab File ID: PC516G07056.d

Analysis Method: DV-LC-0012 | Date Collected: 06/30/2016 02:00

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.18(g) | Date Analyzed: 07/07/2016 17:32

Con. Extract Vol.: 20(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 8.7 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 332793 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.15	U	0.86	0.15
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.13	U	0.86	0.13
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.30	U	0.86	0.30
375-95-1	Perfluorononanoic acid (PFNA)	0.24	U	0.86	0.24
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.15	U	0.86	0.15
335-67-1	Perfluorooctanoic acid (PFOA)	0.25	U	0.86	0.25

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	103		57-153
STL01054	13C8 PFOS	105		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07056.d
Lims ID: 280-85171-A-12-A Lab Sample ID: 280-85171-12
Client ID: SB-DUP
Sample Type: Client
Inject. Date: 07-Jul-2016 17:32:22 ALS Bottle#: 0 Worklist Smp#: 21
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85171-A-12-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 08-Jul-2016 09:16:01 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK002

First Level Reviewer: fiedlerh Date: 08-Jul-2016 08:16:27

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.513	4.579	-0.066		25791344	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.630				ND			
298.9 > 98.9		5.630							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	6.008	6.084	-0.076		20263107	10.0			
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.414	6.499	-0.085		2583313	9.46			
10 Perfluorohexane Sulfonate									
398.9 > 80.0		6.490				ND			
398.9 > 98.9		6.490							
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.491				ND			
363.0 > 168.9		6.491							
$ 14 13C8 PFOA									
421.0 > 375.9	6.754	6.830	-0.076	1.000	25748611	10.1			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.754	6.830	-0.076		31464817	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9		6.831				ND			
413.0 > 169.0		6.831							
$ 18 13C8 PFOS									
506.9 > 80.0	7.027	7.093	-0.067	1.000	5687842	9.72			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	7.027	7.093	-0.066		9145900	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9		7.093				ND			
498.9 > 98.9		7.093							

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
20 Perfluorononanoic acid									
463.0 > 418.9		7.123				ND			
463.0 > 218.9		7.123							
* 21 13C5 PFNA (IS)									
467.9 > 423.0	7.047	7.123	-0.076		25118073	10.0			
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.291	7.357	-0.066		27122166	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.508	7.556	-0.048		16504479	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.687	7.734	-0.047		33807843	10.0			
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.728	7.775	-0.047		26484099	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

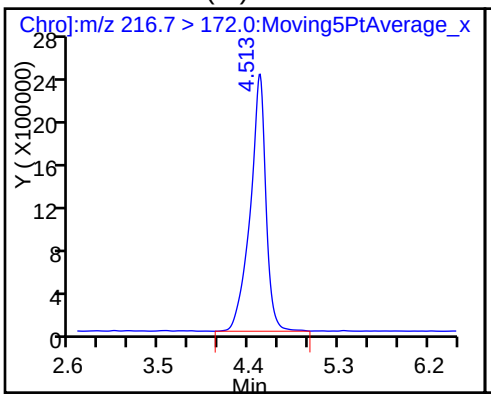
Report Date: 08-Jul-2016 09:16:34 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

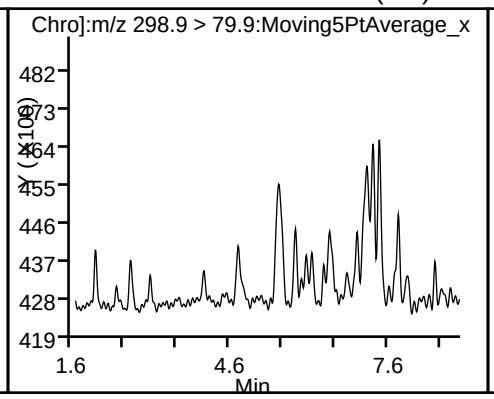
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07056.d

Injection Date:	07-Jul-2016 17:32:22	Instrument ID:	LC_LCMS5		
Lims ID:	280-85171-A-12-A	Lab Sample ID:	280-85171-12		
Client ID:	SB-DUP				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	21
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

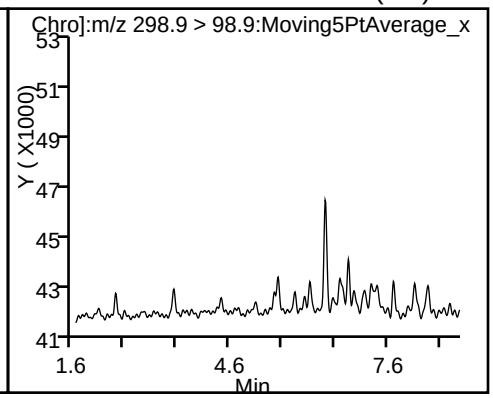
* 1 13C4 PFBA (IS)



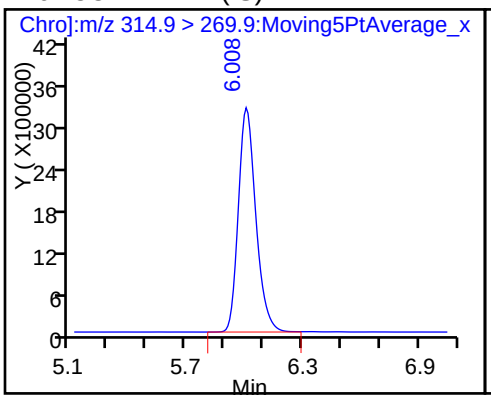
4 Perfluorobutane Sulfonate (ND)



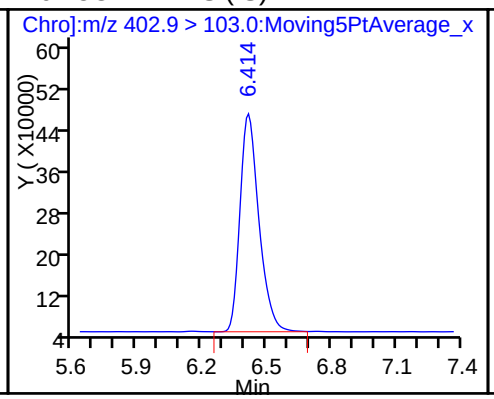
4 Perfluorobutane Sulfonate (ND)



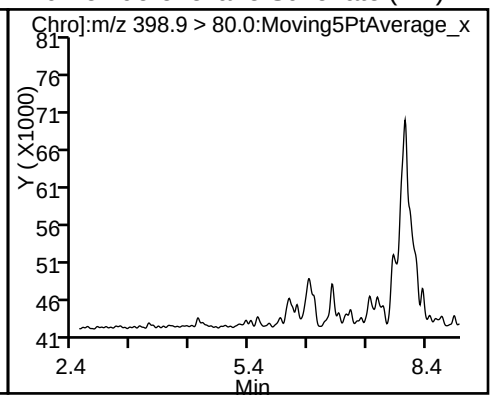
* 6 13C2 PFHxA (IS)



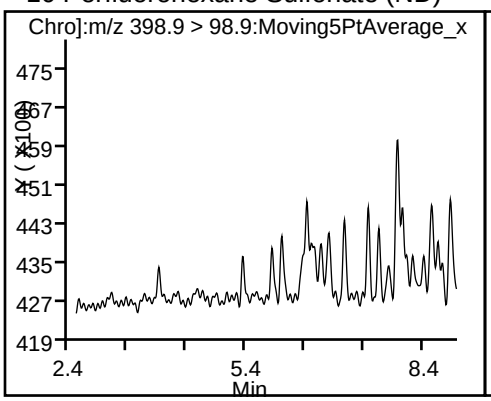
* 9 18O2 PFHxS (IS)



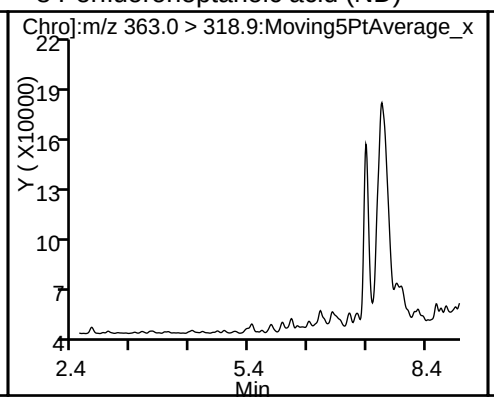
10 Perfluorohexane Sulfonate (ND)



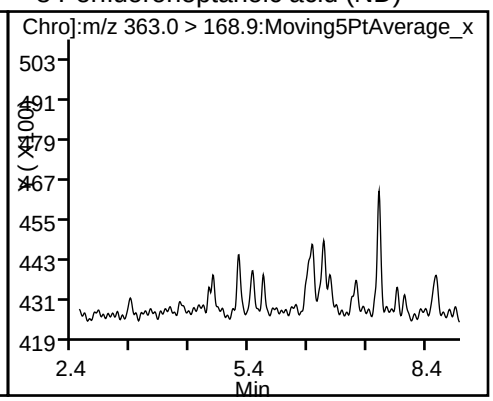
10 Perfluorohexane Sulfonate (ND)



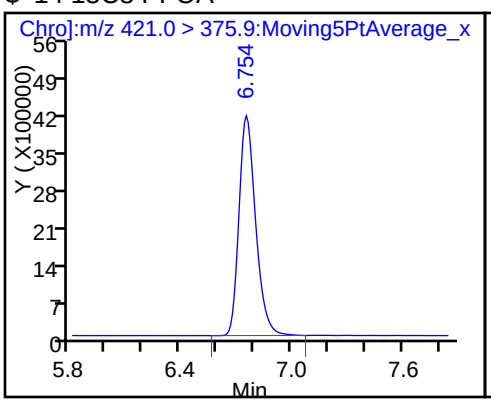
8 Perfluoroheptanoic acid (ND)



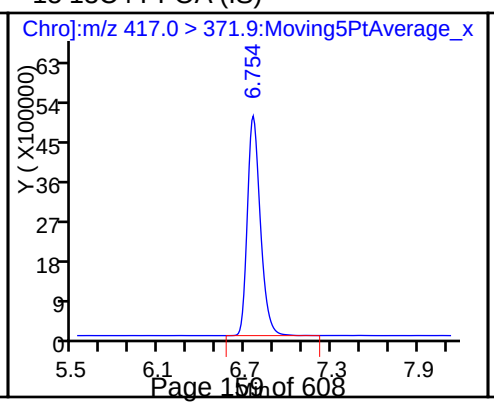
8 Perfluoroheptanoic acid (ND)



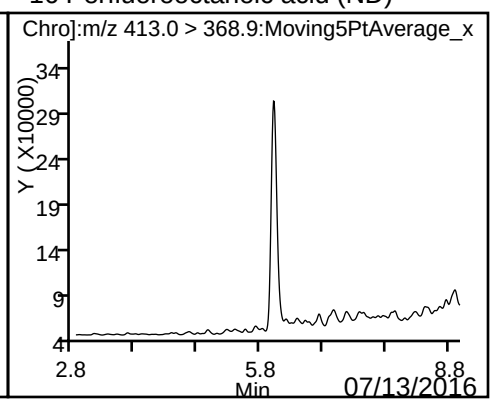
$ 14 13C8 PFOA



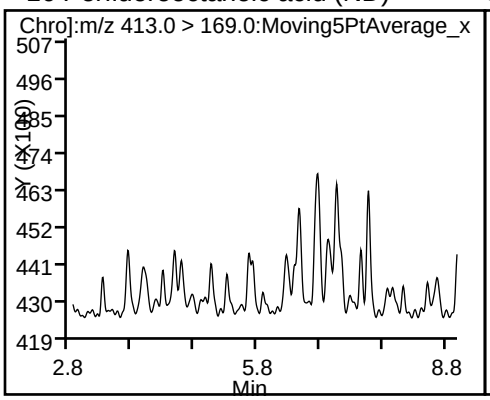
* 15 13C4 PFOA (IS)



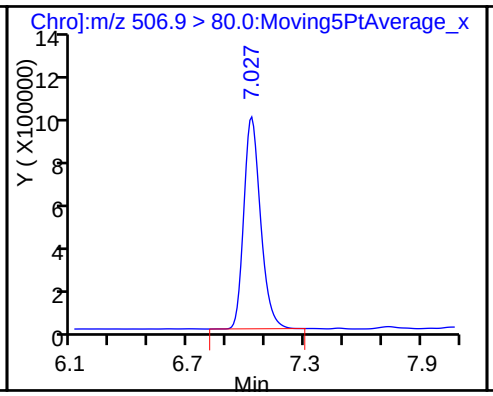
16 Perfluorooctanoic acid (ND)



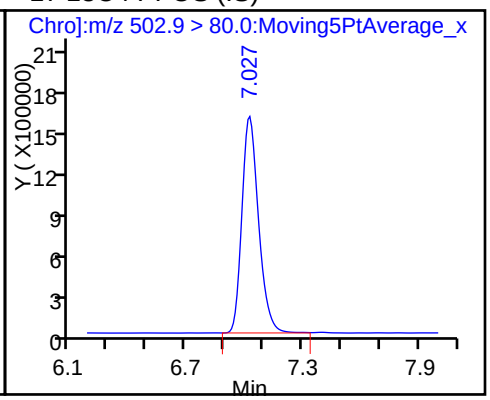
16 Perfluorooctanoic acid (ND)



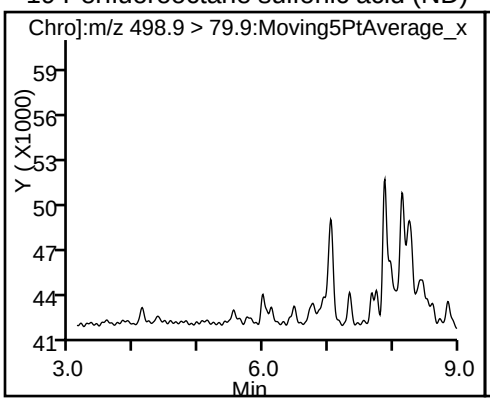
$ 18 13C8 PFOS



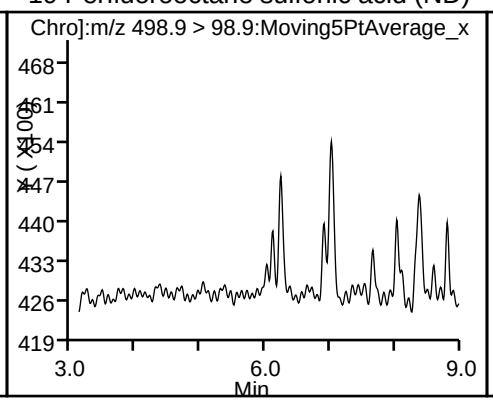
* 17 13C4 PFOS (IS)



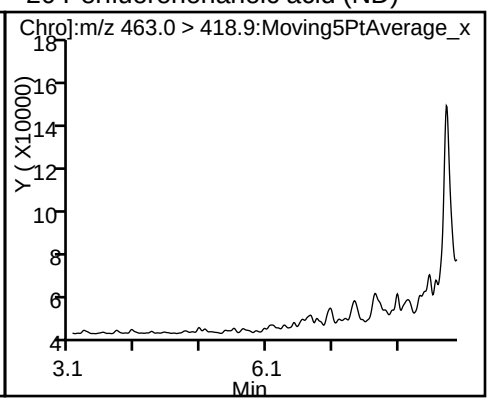
19 Perfluorooctane sulfonic acid (ND)



19 Perfluorooctane sulfonic acid (ND)



20 Perfluorononanoic acid (ND)



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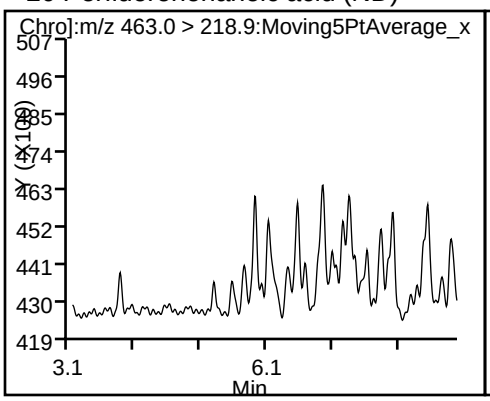
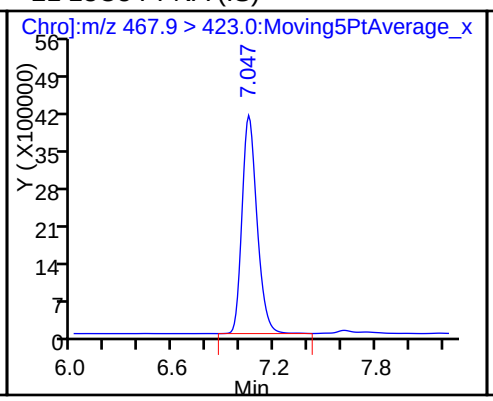
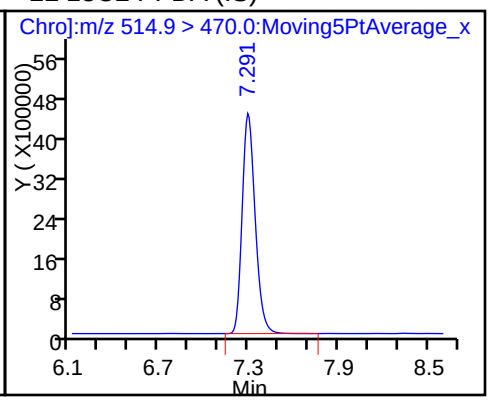


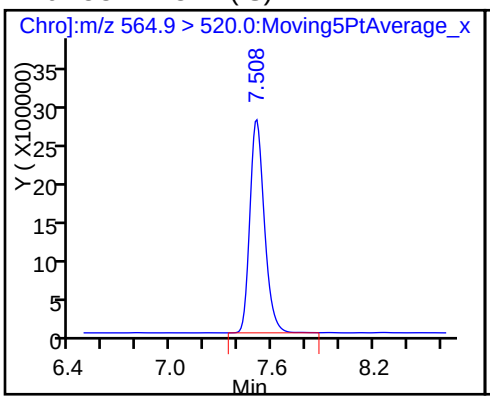
* 21 13C5 PFNA (IS)



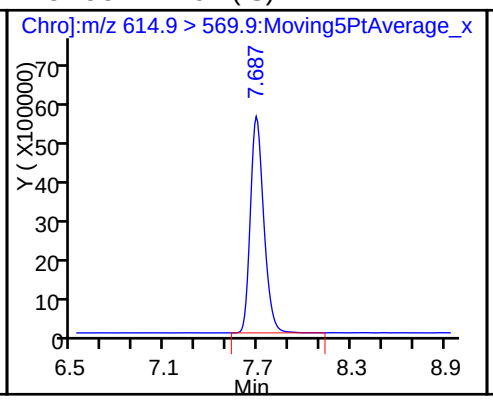
* 22 13C2 PFDA (IS)



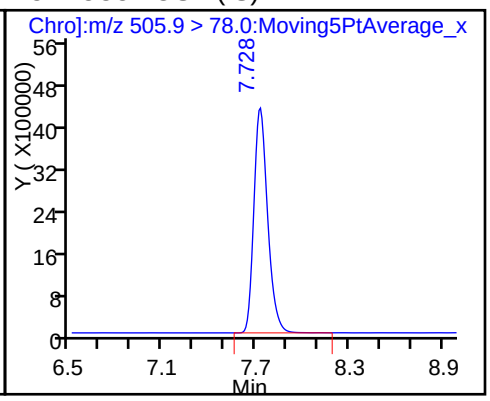
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB007-16.0 | Lab Sample ID: 280-85171-13

Matrix: Solid | Lab File ID: PC516G07057.d

Analysis Method: DV-LC-0012 | Date Collected: 06/30/2016 02:35

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.33(g) | Date Analyzed: 07/07/2016 17:44

Con. Extract Vol.: 20(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 8.7 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 332793 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.15	U	0.85	0.15
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.13	U	0.85	0.13
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.30	U	0.85	0.30
375-95-1	Perfluorononanoic acid (PFNA)	0.23	U	0.85	0.23
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.15	U	0.85	0.15
335-67-1	Perfluorooctanoic acid (PFOA)	0.24	U	0.85	0.24

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	105		57-153
STL01054	13C8 PFOS	101		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07057.d
Lims ID: 280-85171-A-13-A Lab Sample ID: 280-85171-13
Client ID: SB007-16.0
Sample Type: Client
Inject. Date: 07-Jul-2016 17:44:40 ALS Bottle#: 0 Worklist Smp#: 22
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85171-A-13-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 08-Jul-2016 09:16:01 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK002

First Level Reviewer: fiedlerh Date: 08-Jul-2016 08:16:55

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.531	4.579	-0.048		26505420	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.630				ND			
298.9 > 98.9		5.630							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	6.036	6.084	-0.048		21259356	10.0			
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.452	6.499	-0.047		2751486	9.46			
10 Perfluorohexane Sulfonate									
398.9 > 80.0		6.490				ND			
398.9 > 98.9		6.490							
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.491				ND			
363.0 > 168.9		6.491							
$ 14 13C8 PFOA									
421.0 > 375.9	6.802	6.830	-0.028	1.000	27921719	10.2			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.802	6.830	-0.028		33708286	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9		6.831				ND			
413.0 > 169.0		6.831							
$ 18 13C8 PFOS									
506.9 > 80.0	7.064	7.093	-0.029	1.000	5829547	9.33			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	7.065	7.093	-0.028		9770291	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9		7.093				ND			
498.9 > 98.9		7.093							

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
20 Perfluorononanoic acid									
463.0 > 418.9		7.123				ND			
463.0 > 218.9		7.123							
* 21 13C5 PFNA (IS)									
467.9 > 423.0	7.085	7.123	-0.038		25765678	10.0			
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.329	7.357	-0.028		27615572	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.527	7.556	-0.029		16997251	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.697	7.734	-0.037		36025781	10.0			
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.747	7.775	-0.028		28658601	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

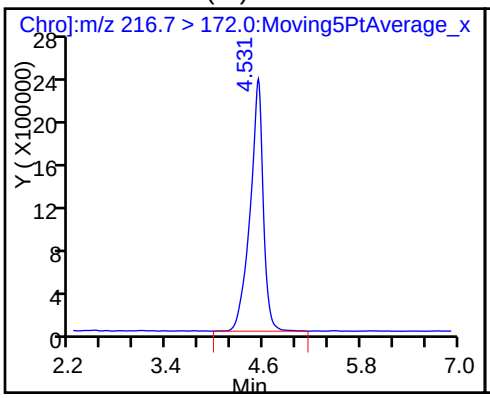
Report Date: 08-Jul-2016 09:16:37 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

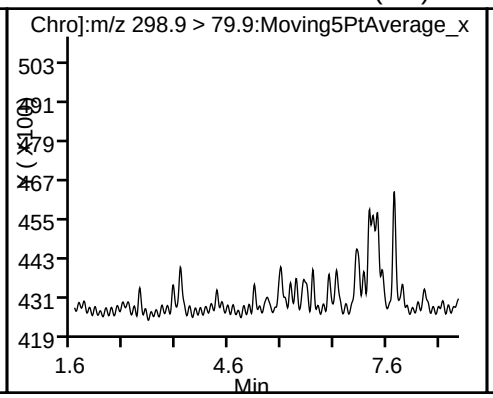
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07057.d

Injection Date:	07-Jul-2016 17:44:40	Instrument ID:	LC_LCMS5		
Lims ID:	280-85171-A-13-A	Lab Sample ID:	280-85171-13		
Client ID:	SB007-16.0				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	22
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

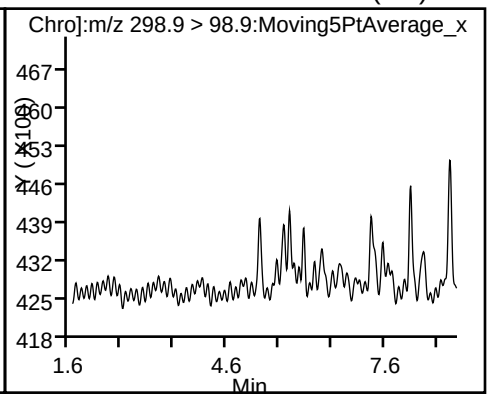
* 1 13C4 PFBA (IS)



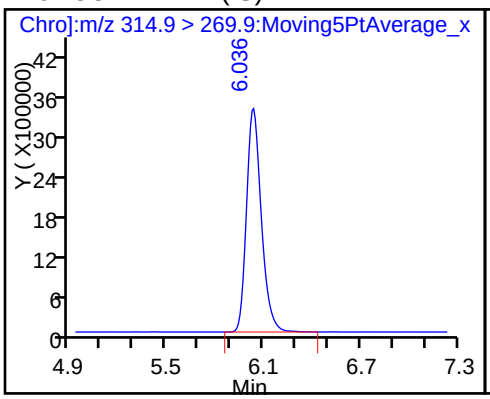
4 Perfluorobutane Sulfonate (ND)



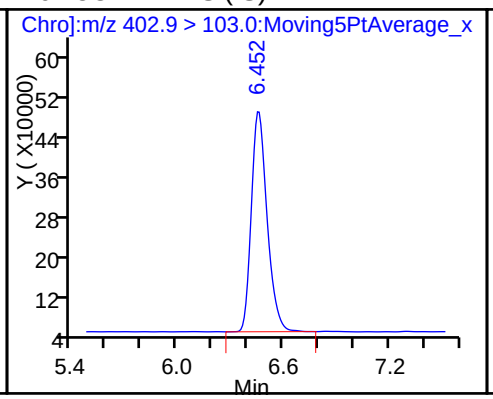
4 Perfluorobutane Sulfonate (ND)



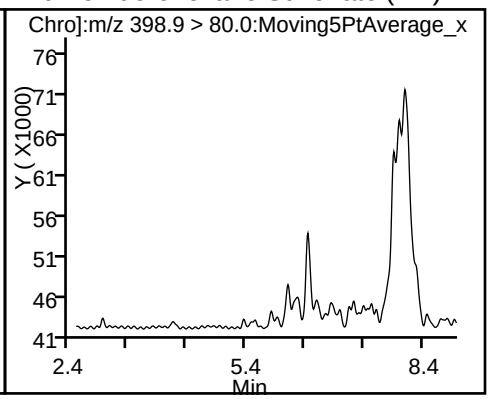
* 6 13C2 PFHxA (IS)



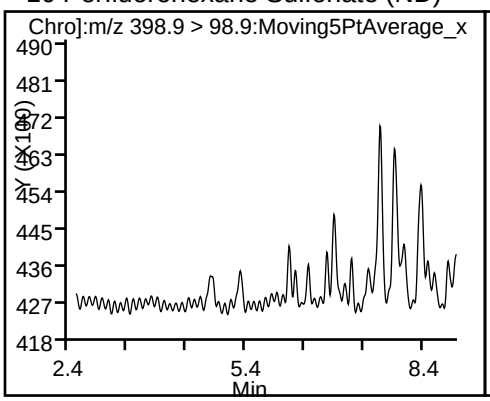
* 9 18O2 PFHxS (IS)



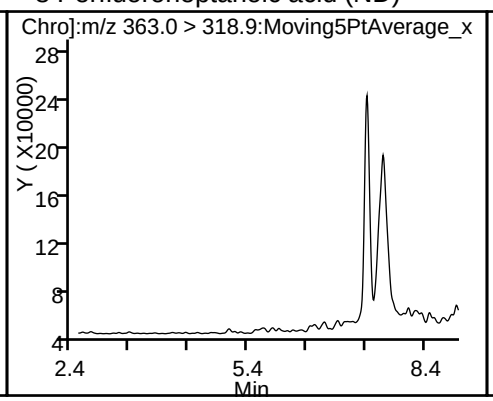
10 Perfluorohexane Sulfonate (ND)



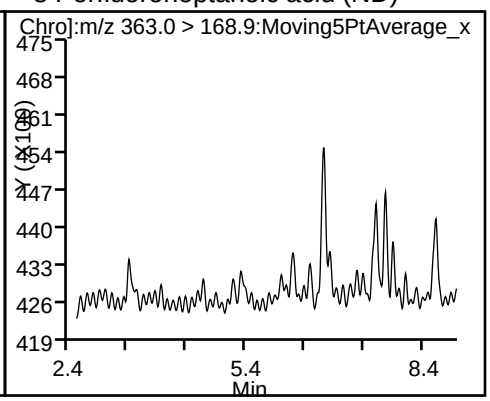
10 Perfluorohexane Sulfonate (ND)



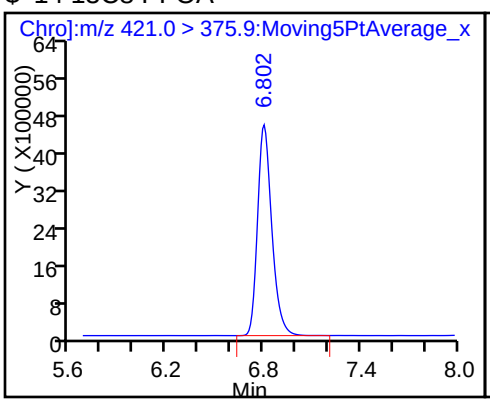
8 Perfluoroheptanoic acid (ND)



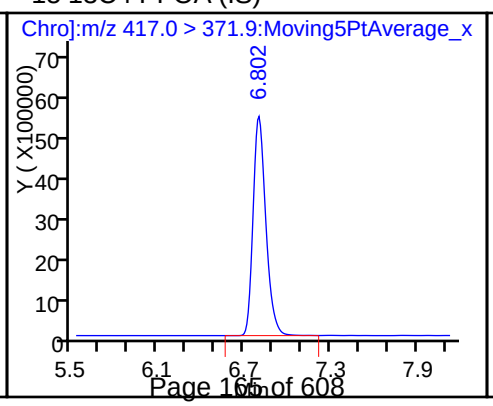
8 Perfluoroheptanoic acid (ND)



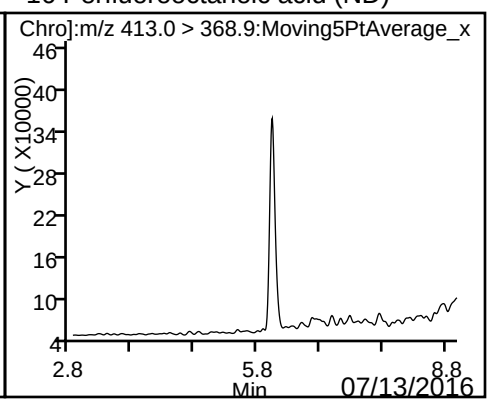
$ 14 13C8 PFOA



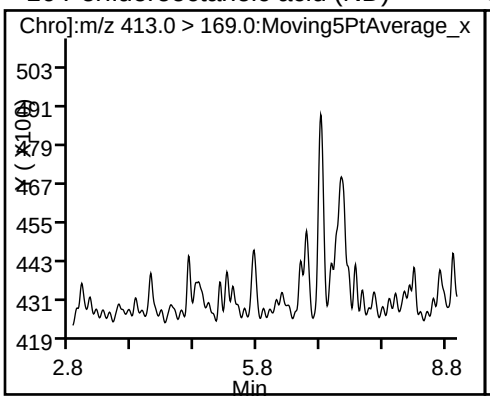
* 15 13C4 PFOA (IS)



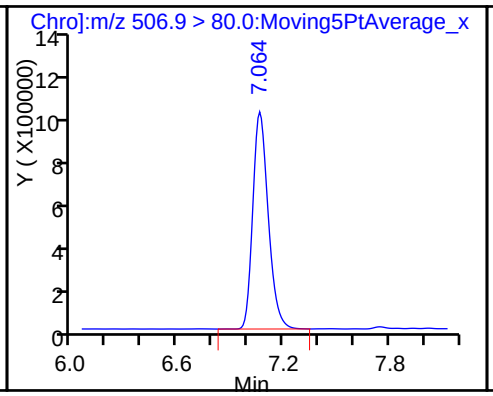
16 Perfluorooctanoic acid (ND)



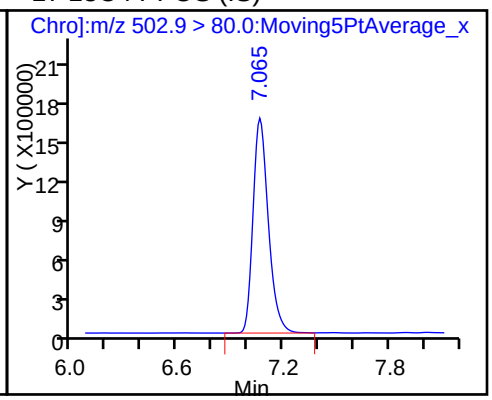
16 Perfluorooctanoic acid (ND)



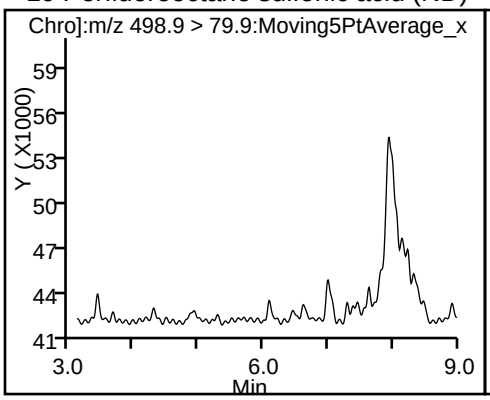
$ 18 13C8 PFOS



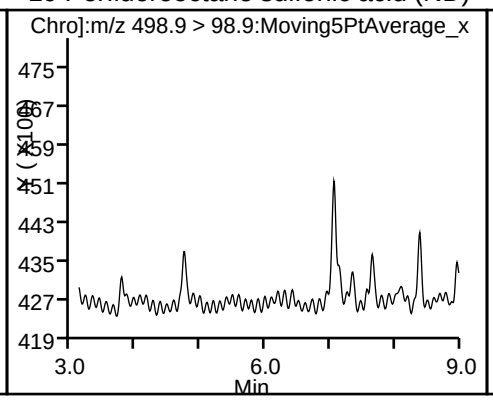
* 17 13C4 PFOS (IS)



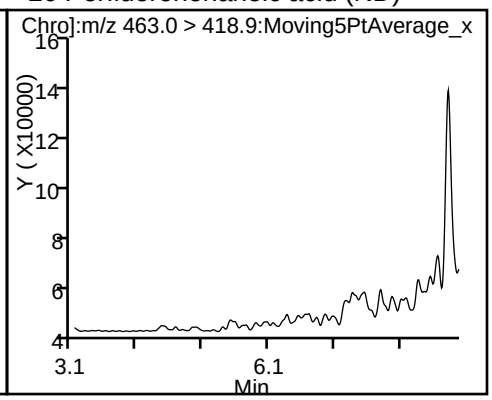
19 Perfluorooctane sulfonic acid (ND)



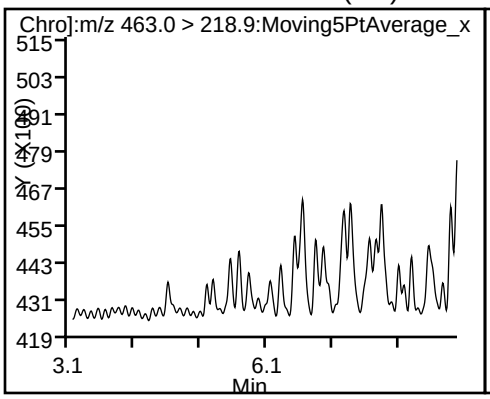
19 Perfluorooctane sulfonic acid (ND)



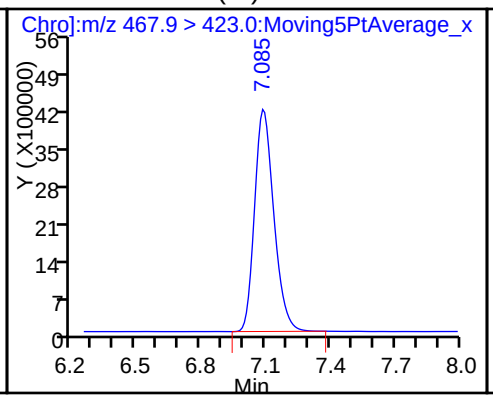
20 Perfluorononanoic acid (ND)



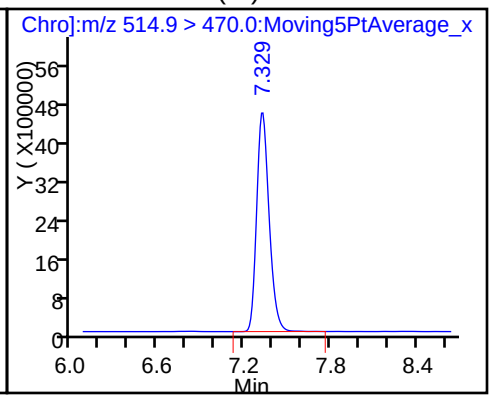
20 Perfluorononanoic acid (ND)



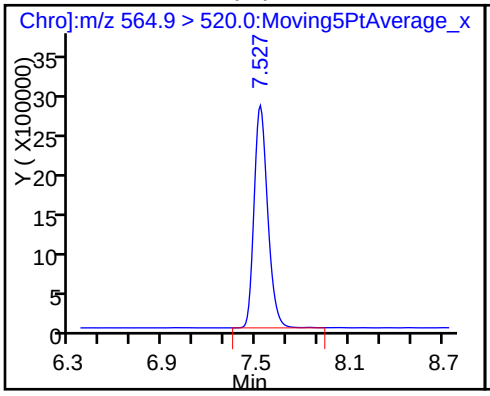
* 21 13C5 PFNA (IS)



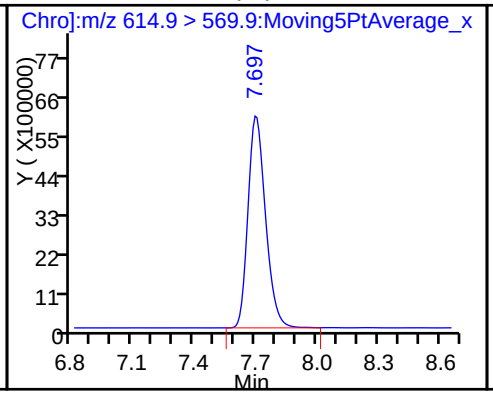
* 22 13C2 PFDA (IS)



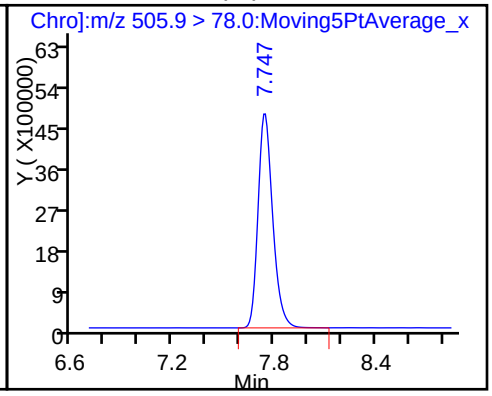
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB009-0.5 | Lab Sample ID: 280-85171-14

Matrix: Solid | Lab File ID: PC516G07058.d

Analysis Method: DV-LC-0012 | Date Collected: 06/30/2016 02:50

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.63(g) | Date Analyzed: 07/07/2016 17:56

Con. Extract Vol.: 20(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 9.6 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 332793 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.15	U	0.83	0.15
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.12	U	0.83	0.12
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.36	J	0.83	0.29
375-95-1	Perfluorononanoic acid (PFNA)	0.23	U	0.83	0.23
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	7.04		0.83	0.15
335-67-1	Perfluorooctanoic acid (PFOA)	0.24	U	0.83	0.24

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	105		57-153
STL01054	13C8 PFOS	103		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07058.d
Lims ID: 280-85171-A-14-A Lab Sample ID: 280-85171-14
Client ID: SB009-0.5
Sample Type: Client
Inject. Date: 07-Jul-2016 17:56:59 ALS Bottle#: 0 Worklist Smp#: 23
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85171-A-14-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 08-Jul-2016 09:16:01 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK002

First Level Reviewer: fiedlerh Date: 08-Jul-2016 08:17:31

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.494	4.579	-0.085		27349138	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.630				ND			
298.9 > 98.9		5.630							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.998	6.084	-0.086		22468935	10.0			
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.405	6.499	-0.094		2440570	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.405	6.490	-0.085	1.000	257209	0.1740			R
398.9 > 98.9	6.414	6.490	-0.076	1.002	90552		2.84(1.30-2.41)		
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.491				ND			
363.0 > 168.9		6.491							
$ 14 13C8 PFOA									
421.0 > 375.9	6.735	6.830	-0.095	1.000	27014582	10.3			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.736	6.830	-0.094		32332671	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9		6.831				ND			
413.0 > 169.0		6.831							
$ 18 13C8 PFOS									
506.9 > 80.0	7.008	7.093	-0.085	1.000	5648773	9.58			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	7.008	7.093	-0.085		9216587	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	7.008	7.093	-0.085	1.000	3872058	3.38			R
498.9 > 98.9	7.008	7.093	-0.085	1.000	1374567		2.82(1.31-2.43)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
20 Perfluorononanoic acid									
463.0 > 418.9		7.123				ND			
463.0 > 218.9		7.123							
* 21 13C5 PFNA (IS)									
467.9 > 423.0	7.028	7.123	-0.095		25100974	10.0			
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.282	7.357	-0.075		27063318	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.499	7.556	-0.057		16281203	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.678	7.734	-0.056		35667599	10.0			
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.718	7.775	-0.057		26019353	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

R - Failed Signal Ratio Test

Report Date: 08-Jul-2016 09:16:41 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07058.d

Injection Date: 07-Jul-2016 17:56:59 Instrument ID: LC_LCMS5

Lims ID: 280-85171-A-14-A Lab Sample ID: 280-85171-14

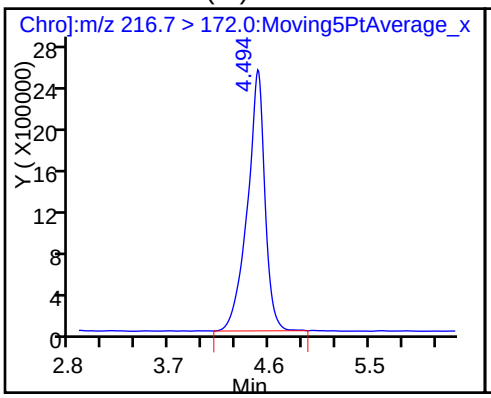
Client ID: SB009-0.5

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 23

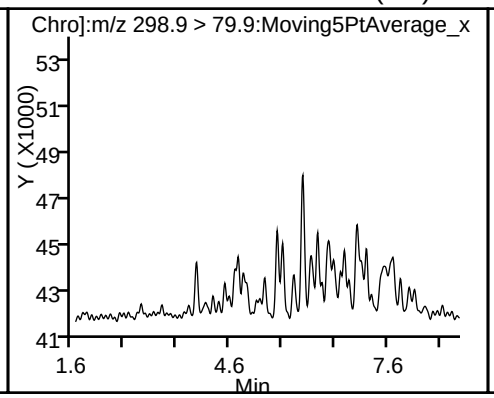
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

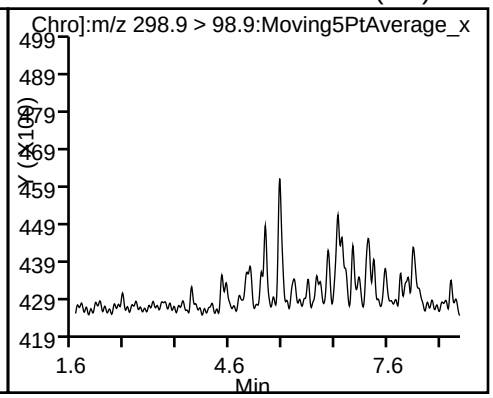
* 1 13C4 PFBA (IS)



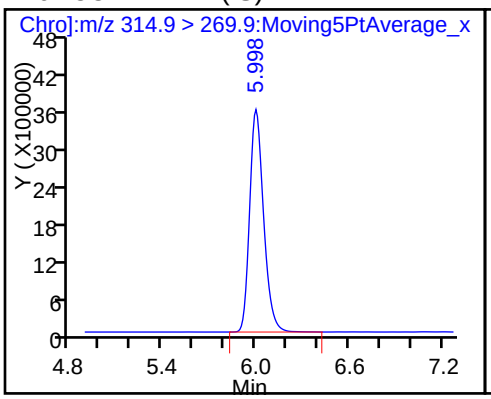
4 Perfluorobutane Sulfonate (ND)



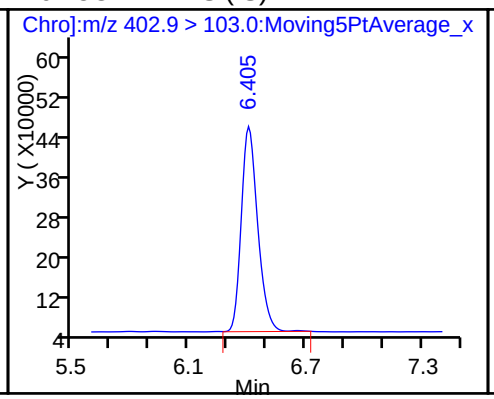
4 Perfluorobutane Sulfonate (ND)



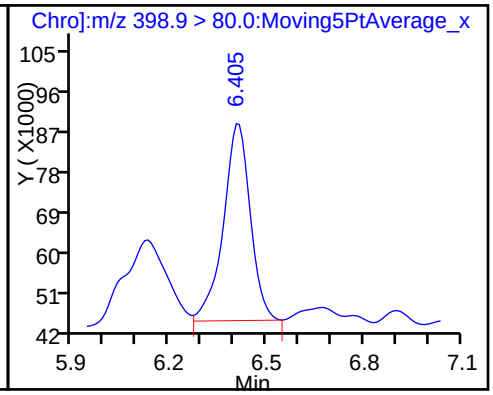
* 6 13C2 PFHxA (IS)



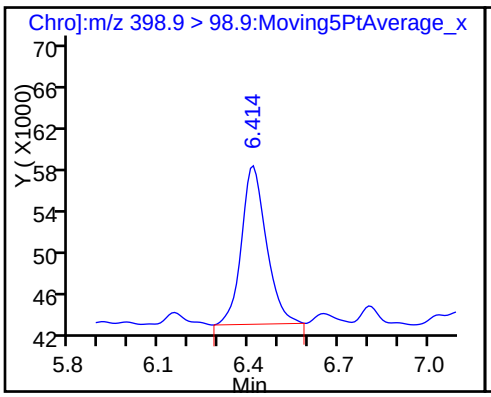
* 9 18O2 PFHxS (IS)



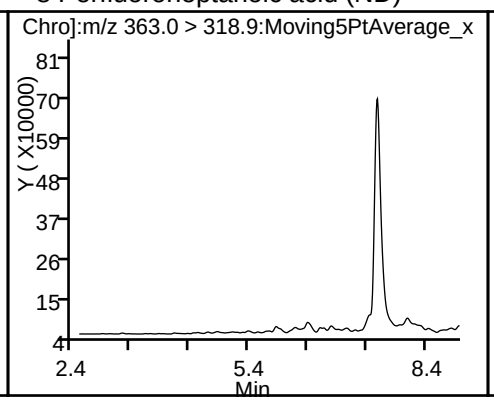
10 Perfluorohexane Sulfonate



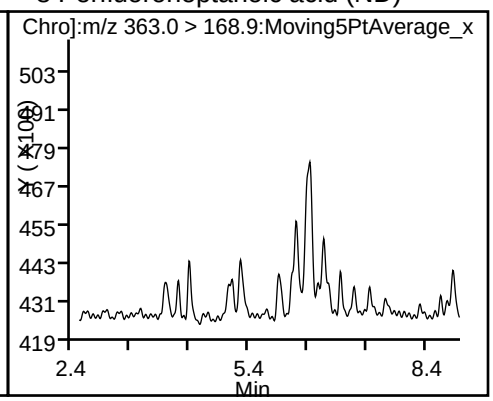
10 Perfluorohexane Sulfonate



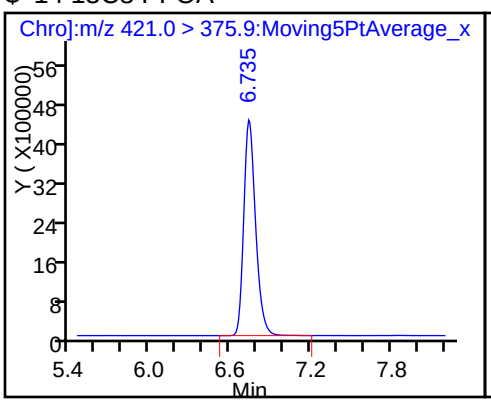
8 Perfluoroheptanoic acid (ND)



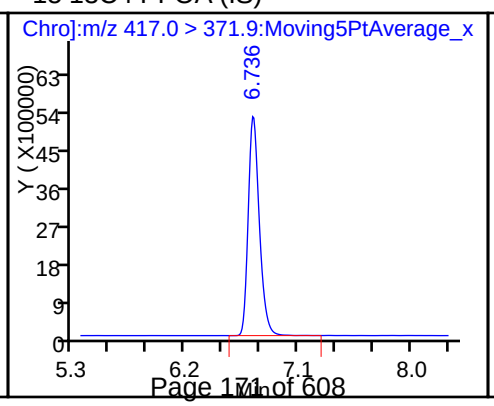
8 Perfluoroheptanoic acid (ND)



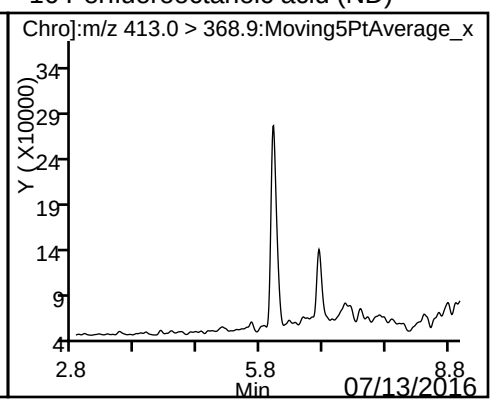
$ 14 13C8 PFOA



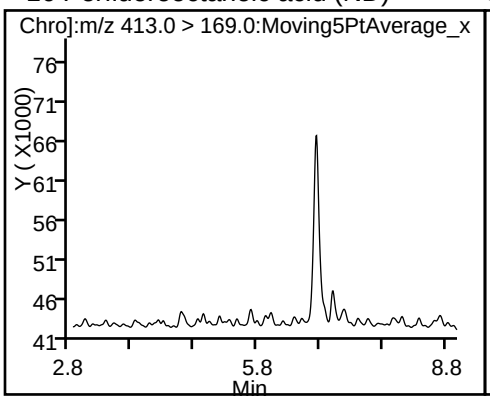
* 15 13C4 PFOA (IS)



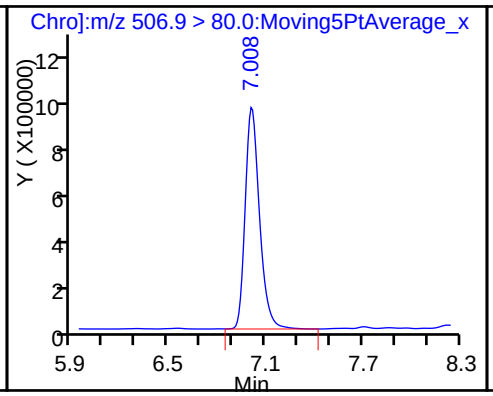
16 Perfluorooctanoic acid (ND)



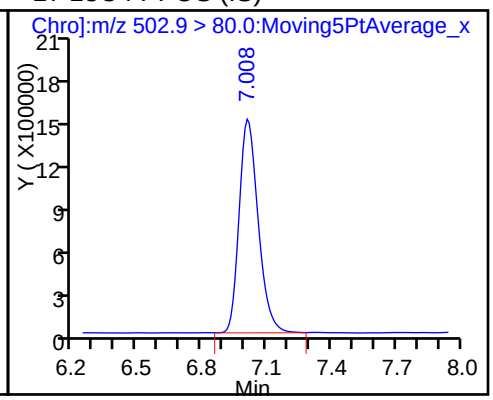
16 Perfluorooctanoic acid (ND)



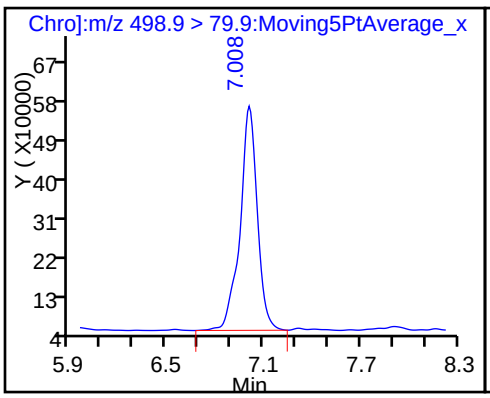
$ 18 13C8 PFOS



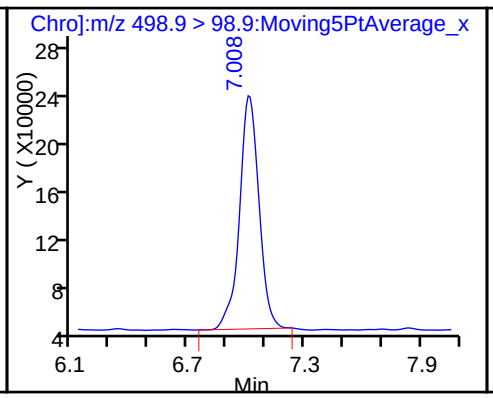
* 17 13C4 PFOS (IS)



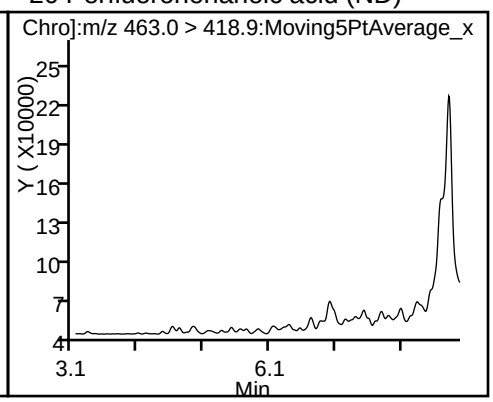
19 Perfluorooctane sulfonic acid



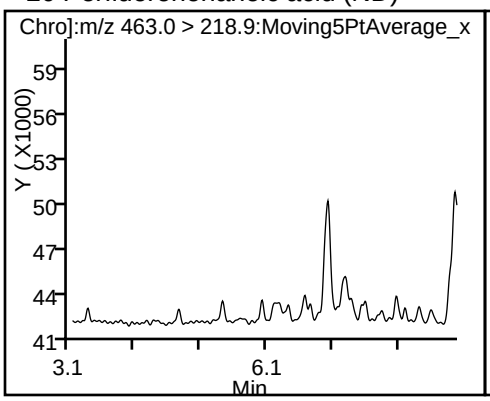
19 Perfluorooctane sulfonic acid



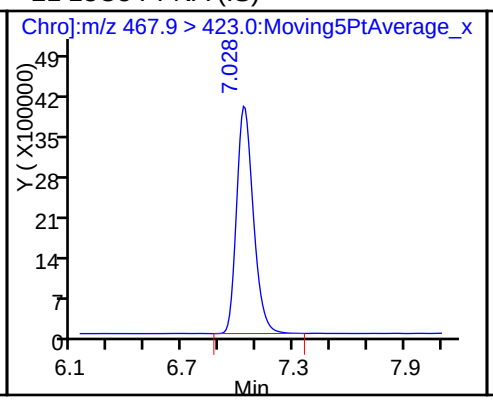
20 Perfluorononanoic acid (ND)



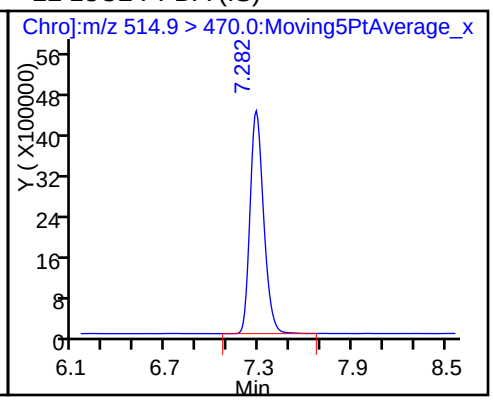
20 Perfluorononanoic acid (ND)



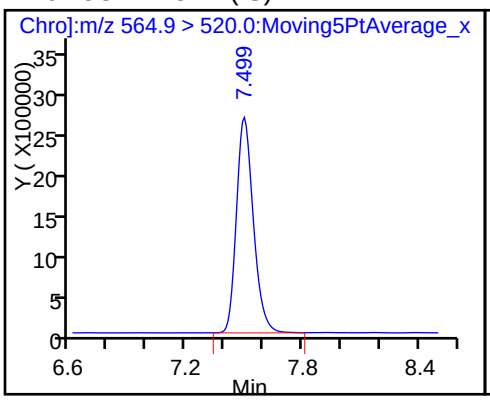
* 21 13C5 PFNA (IS)



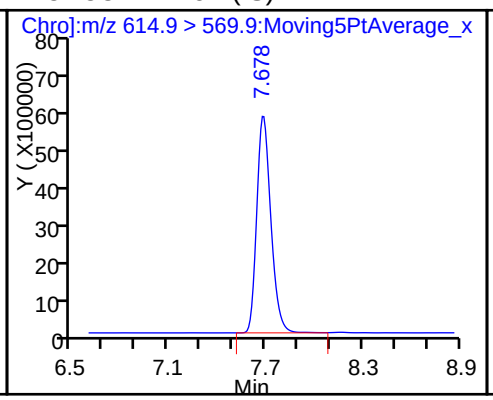
* 22 13C2 PFDA (IS)



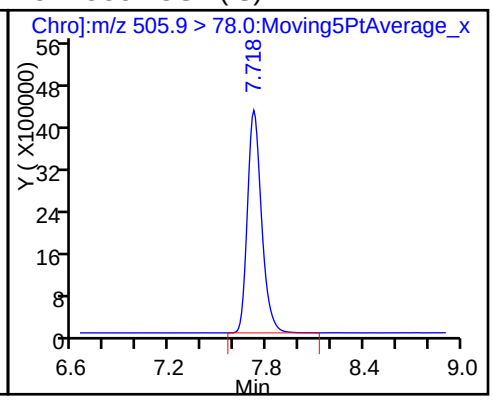
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB008-0.5 | Lab Sample ID: 280-85171-15

Matrix: Solid | Lab File ID: PC516G07059.d

Analysis Method: DV-LC-0012 | Date Collected: 06/30/2016 03:00

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.80(g) | Date Analyzed: 07/07/2016 18:09

Con. Extract Vol.: 20(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 14.7 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 332793 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	1.84		0.87	0.15
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.03		0.87	0.13
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	41.4		0.87	0.30
375-95-1	Perfluorononanoic acid (PFNA)	5.63		0.87	0.24
335-67-1	Perfluorooctanoic acid (PFOA)	5.68		0.87	0.25

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	107		57-153
STL01054	13C8 PFOS	111		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07059.d
Lims ID: 280-85171-A-15-A Lab Sample ID: 280-85171-15
Client ID: SB008-0.5
Sample Type: Client
Inject. Date: 07-Jul-2016 18:09:19 ALS Bottle#: 0 Worklist Smp#: 24
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85171-A-15-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 08-Jul-2016 09:16:01 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK002

First Level Reviewer: fiedlerh Date: 08-Jul-2016 08:19:46

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.513	4.579	-0.066		29297572	10.0			
4 Perfluorobutane Sulfonate									R
298.9 > 79.9	5.563	5.630	-0.067	0.867	1056149	0.8452			R
298.9 > 98.9	5.563	5.630	-0.067	0.867	253515		4.17(1.80-3.35)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.998	6.084	-0.086		19634410	10.0			
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.414	6.499	-0.085		2282728	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.405	6.490	-0.085	0.999	17740435	19.1			R
398.9 > 98.9	6.405	6.490	-0.085	0.999	5899214		3.01(1.30-2.41)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.405	6.491	-0.086	0.950	3792185	1.39			
363.0 > 168.9	6.405	6.491	-0.086	0.950	935777		4.05(3.35-6.23)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.745	6.830	-0.085	1.000	25904108	10.5			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.745	6.830	-0.085		30638460	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.745	6.831	-0.086	1.000	8522126	2.62			
413.0 > 169.0	6.745	6.831	-0.086	1.000	2590545		3.29(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	7.027	7.093	-0.067	1.000	2168027	10.3			
* 17 13C4 PFOS (IS)									s
502.9 > 80.0	7.027	7.093	-0.066		3300063	9.56			
19 Perfluorooctane sulfonic acid									RE
498.9 > 79.9	7.018	7.093	-0.075	0.999	497265317	1238.5			RE
498.9 > 98.9	7.027	7.093	-0.066	1.000	147523289		3.37(1.31-2.43)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
20 Perfluorononanoic acid									R
463.0 > 418.9	7.056	7.123	-0.067	1.000	2948425	2.59			R
463.0 > 218.9	7.056	7.123	-0.067	1.000	550108		5.36(5.59-10.38)		
* 21 13C5 PFNA (IS)									s
467.9 > 423.0	7.056	7.123	-0.067		10020050	10.0			
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.291	7.357	-0.066		25850220	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.508	7.556	-0.048		15883651	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.687	7.734	-0.047		34367232	10.0			
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.728	7.775	-0.047		20987139	10.0			

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

E - Exceeded Maximum Amount

s - Failed ISTD Recovery Test

Report Date: 08-Jul-2016 09:16:49 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07059.d

Injection Date: 07-Jul-2016 18:09:19 Instrument ID: LC_LCMS5

Lims ID: 280-85171-A-15-A Lab Sample ID: 280-85171-15

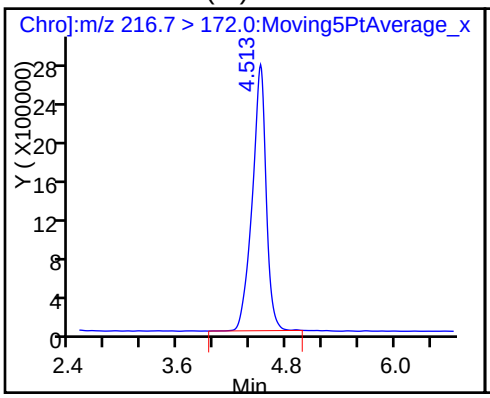
Client ID: SB008-0.5

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 24

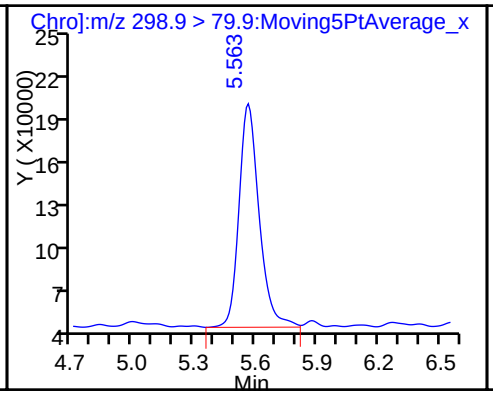
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

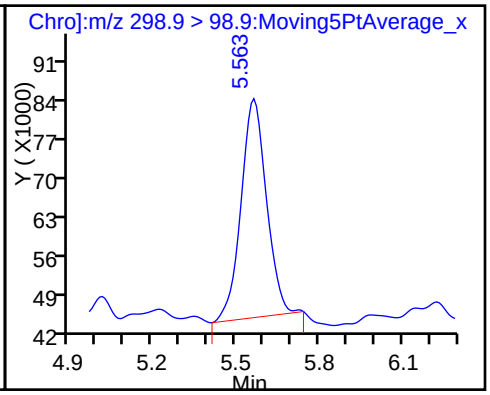
* 1 13C4 PFBA (IS)



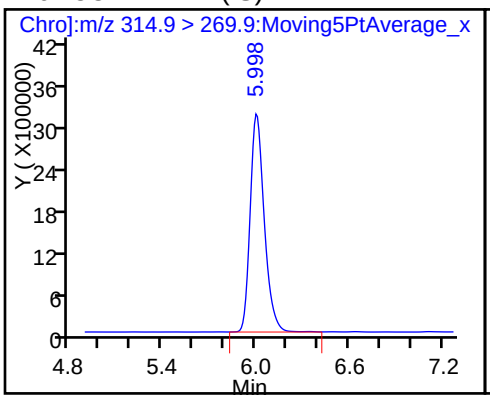
4 Perfluorobutane Sulfonate



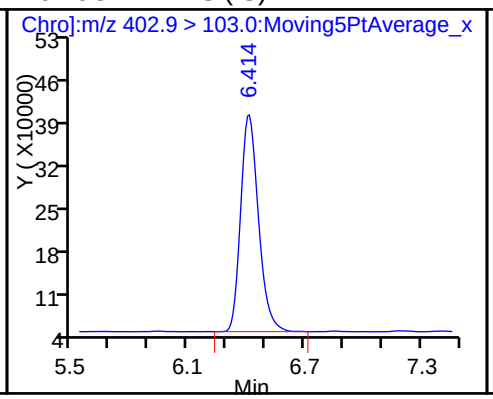
4 Perfluorobutane Sulfonate



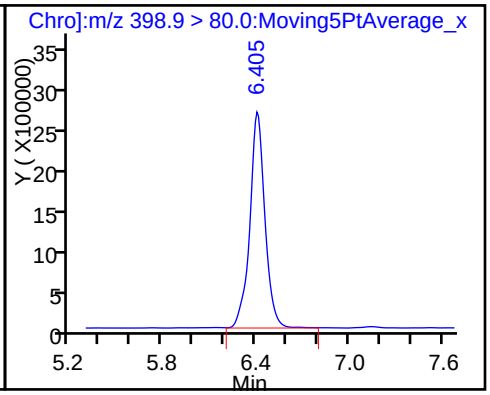
* 6 13C2 PFHxA (IS)



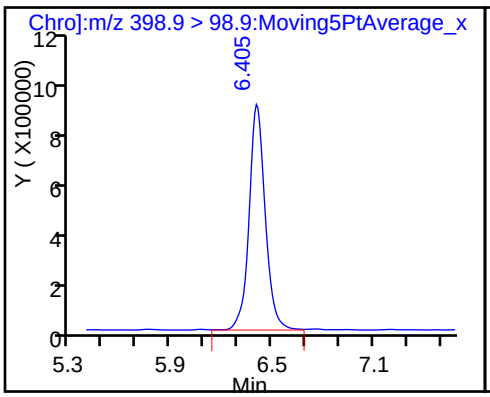
* 9 18O2 PFHxS (IS)



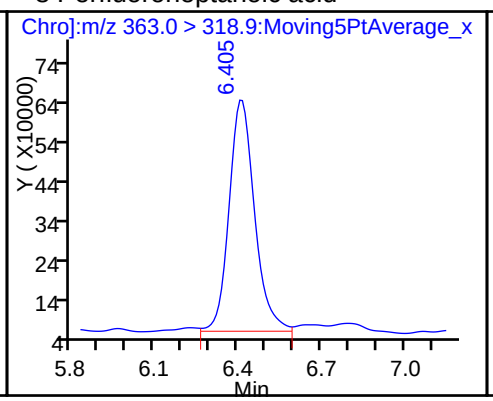
10 Perfluorohexane Sulfonate



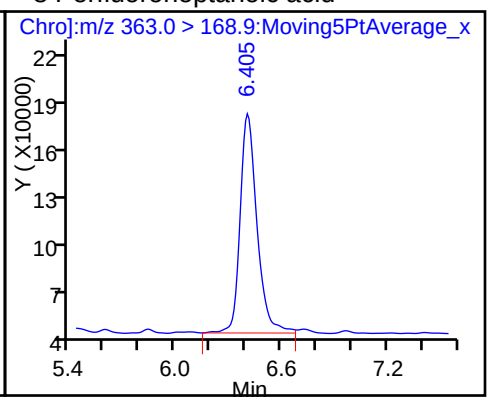
10 Perfluorohexane Sulfonate



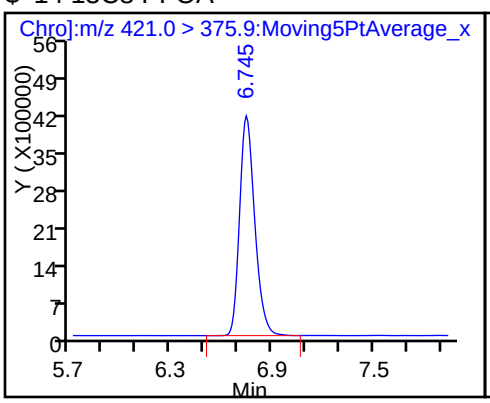
8 Perfluoroheptanoic acid



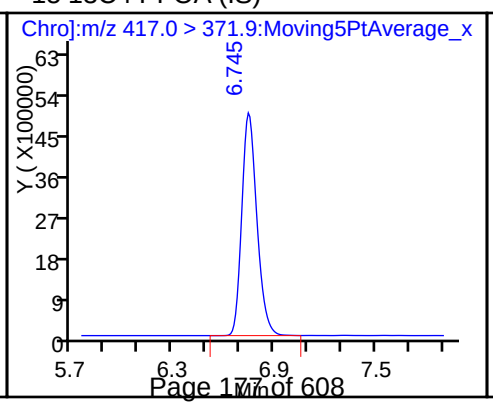
8 Perfluoroheptanoic acid



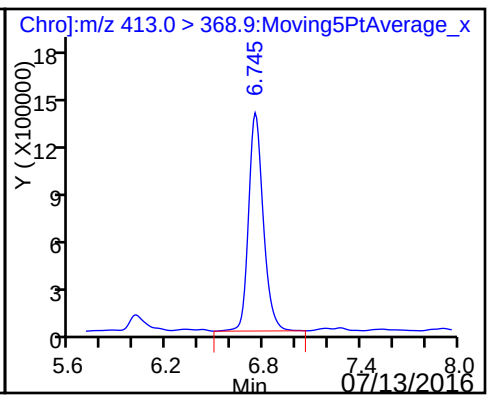
$ 14 13C8 PFOA



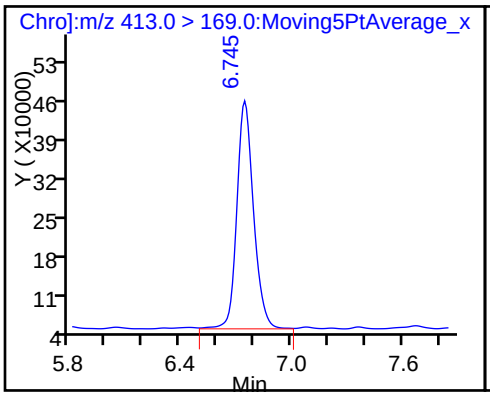
* 15 13C4 PFOA (IS)



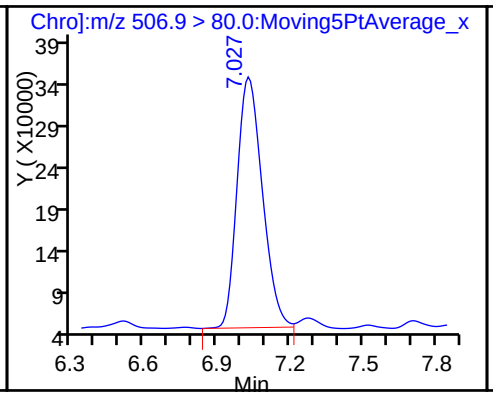
16 Perfluorooctanoic acid



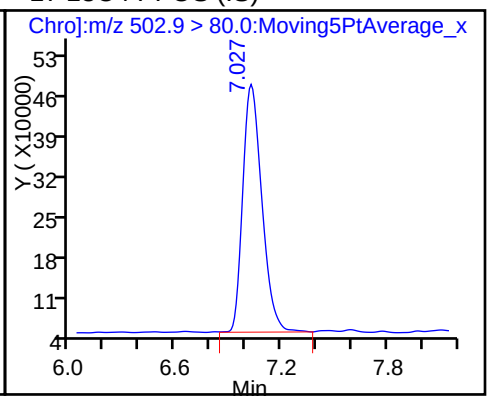
16 Perfluorooctanoic acid



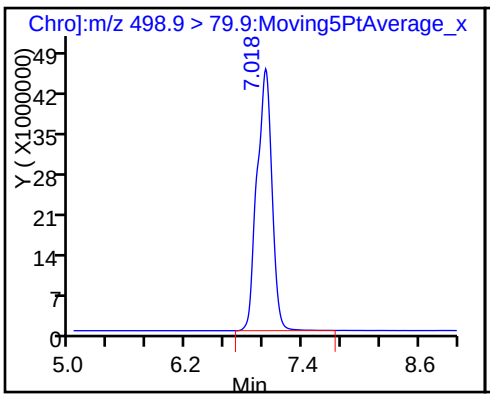
$ 18 13C8 PFOS



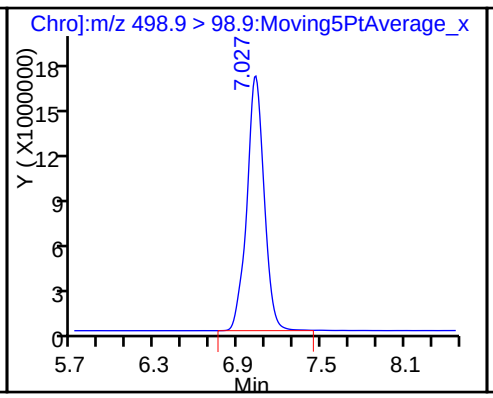
* 17 13C4 PFOS (IS)



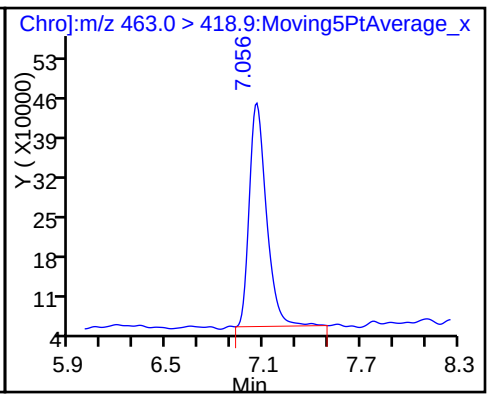
19 Perfluorooctane sulfonic acid



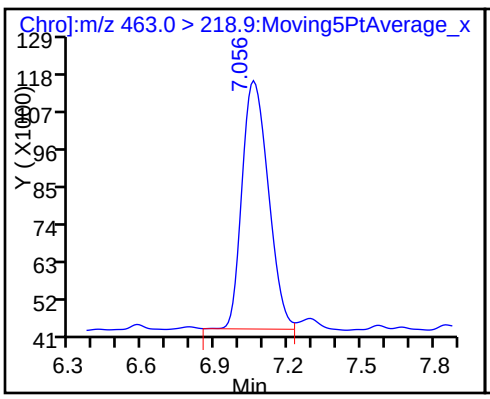
19 Perfluorooctane sulfonic acid



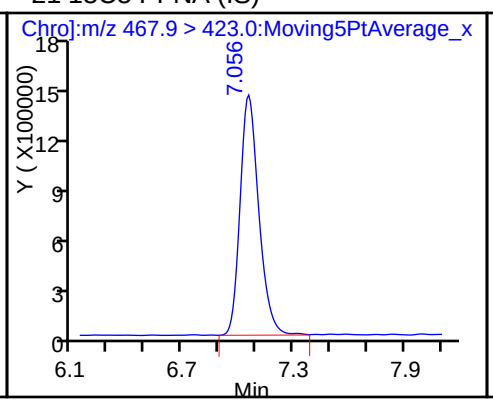
20 Perfluorononanoic acid



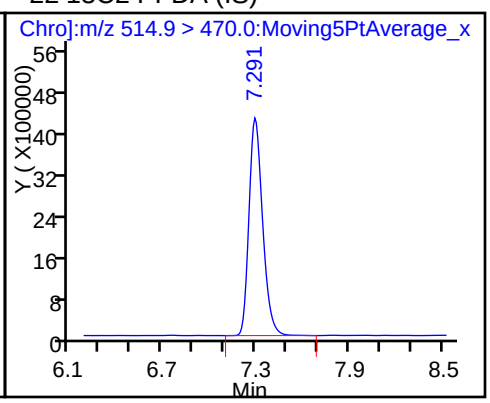
20 Perfluorononanoic acid



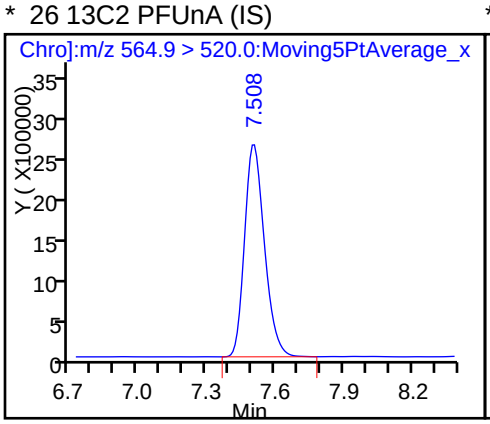
* 21 13C5 PFNA (IS)



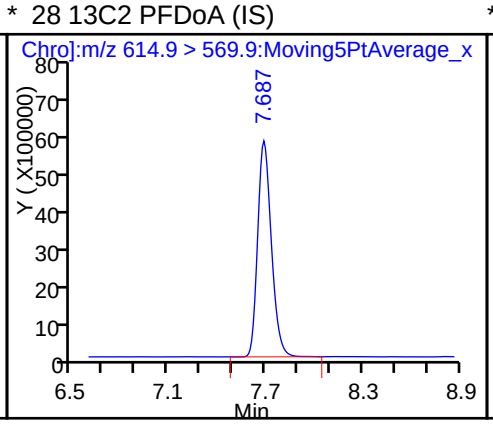
* 22 13C2 PFDA (IS)



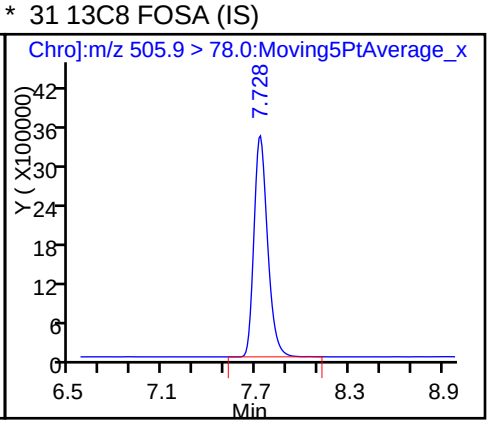
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB008-0.5 DL | Lab Sample ID: 280-85171-15 DL

Matrix: Solid | Lab File ID: PC516G08013.d

Analysis Method: DV-LC-0012 | Date Collected: 06/30/2016 03:00

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.80(g) | Date Analyzed: 07/08/2016 14:02

Con. Extract Vol.: 20(mL) | Dilution Factor: 20

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 14.7 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 333083 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1840	D	17.4	3.04

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	100	D	57-153
STL01054	13C8 PFOS	95	D	70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08013.d
Lims ID: 280-85171-A-15-A Lab Sample ID: 280-85171-15
Client ID: SB008-0.5
Sample Type: Client
Inject. Date: 08-Jul-2016 14:02:46 ALS Bottle#: 0 Worklist Smp#: 8
Injection Vol: 25.0 ul Dil. Factor: 20.0000
Sample Info: 280-85171-A-15-A, Sample
Misc. Info.: 20x
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 11-Jul-2016 11:14:47 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK031

First Level Reviewer: fiedlerh Date: 11-Jul-2016 10:50:07

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.238	4.219	0.019		1654768	0.5000			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.355				ND			
298.9 > 98.9		5.355							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.847	5.837	0.010		987287	0.5000			
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.263	6.272	-0.009		123483	0.4730			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.272	6.272	0.0	1.002	825179	0.7381			R
398.9 > 98.9	6.272	6.272	0.0	1.002	321443		2.57(1.30-2.41)		
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.273				ND			
363.0 > 168.9		6.273							
$ 14 13C8 PFOA									
421.0 > 375.9	6.622	6.612	0.010	1.000	1425110	0.4896			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.622	6.612	0.010		1641697	0.5000			
16 Perfluorooctanoic acid									
413.0 > 368.9		6.613				ND			
413.0 > 169.0		6.613							
$ 18 13C8 PFOS									
506.9 > 80.0	6.894	6.884	0.010	1.000	297804	0.4388			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.895	6.885	0.010	1.000	51223926	42.4			R
498.9 > 98.9	6.895	6.885	0.010	1.000	17220366		2.97(1.31-2.43)		
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.894	6.885	0.009		495477	0.4780			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.914	6.905	0.009		1076705	0.5000			
20 Perfluorononanoic acid									
463.0 > 418.9		6.905				ND			
463.0 > 218.9		6.905							
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.168	7.158	0.010		1474408	0.5000			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.395	7.376	0.019		847936	0.5000			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.573	7.555	0.019		1730188	0.5000			
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.595	7.576	0.019		1325185	0.5000			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

R - Failed Signal Ratio Test

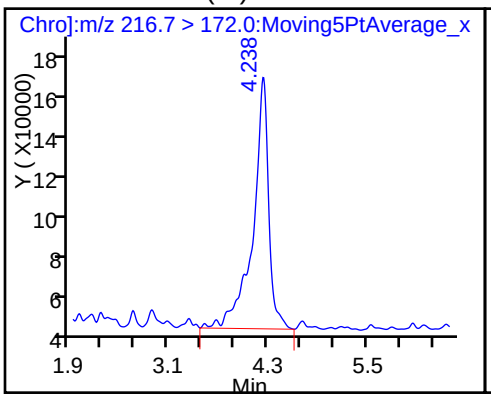
Report Date: 11-Jul-2016 11:14:50 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

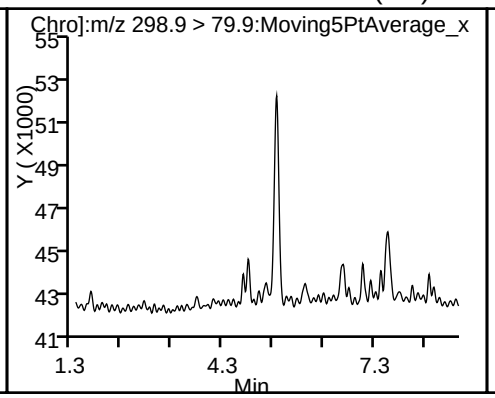
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08013.d

Injection Date:	08-Jul-2016 14:02:46	Instrument ID:	LC_LCMS5		
Lims ID:	280-85171-A-15-A	Lab Sample ID:	280-85171-15		
Client ID:	SB008-0.5				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	8
Injection Vol:	25.0 ul	Dil. Factor:	20.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

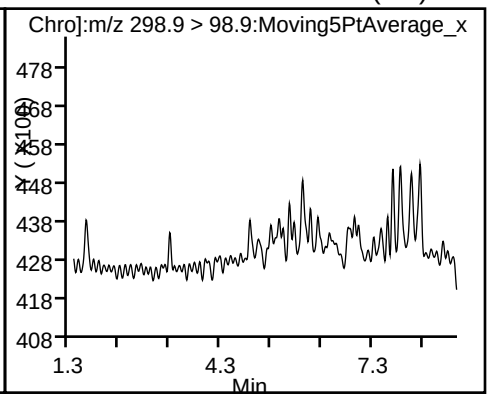
* 1 13C4 PFBA (IS)



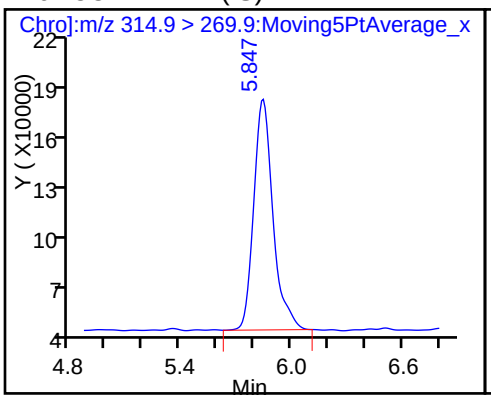
4 Perfluorobutane Sulfonate (ND)



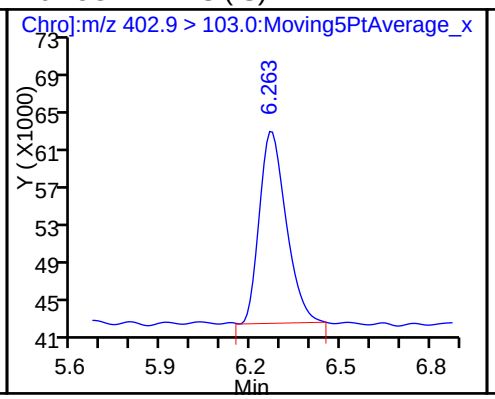
4 Perfluorobutane Sulfonate (ND)



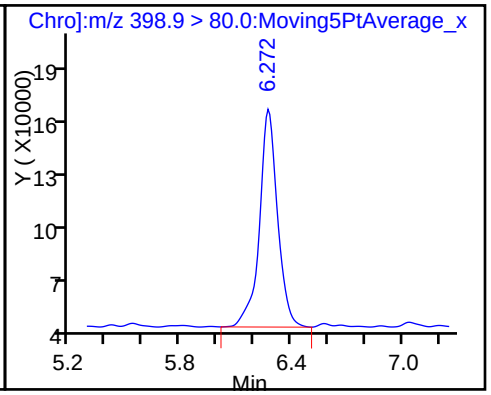
* 6 13C2 PFHxA (IS)



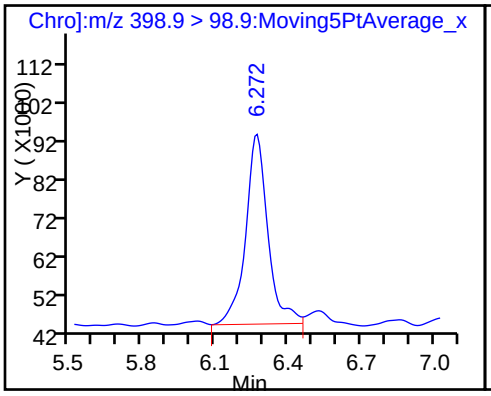
* 9 18O2 PFHxS (IS)



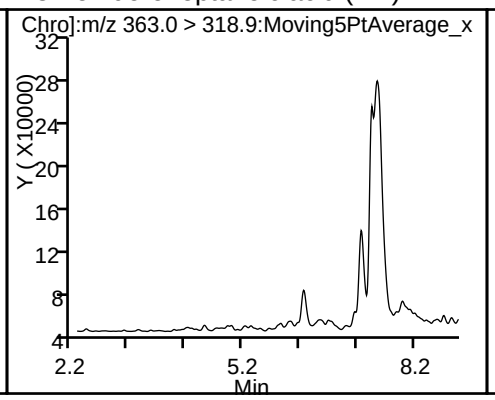
10 Perfluorohexane Sulfonate



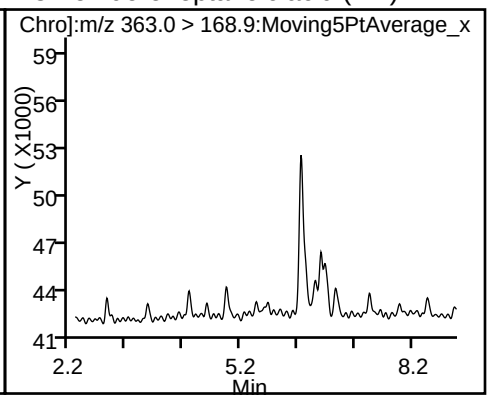
10 Perfluorohexane Sulfonate



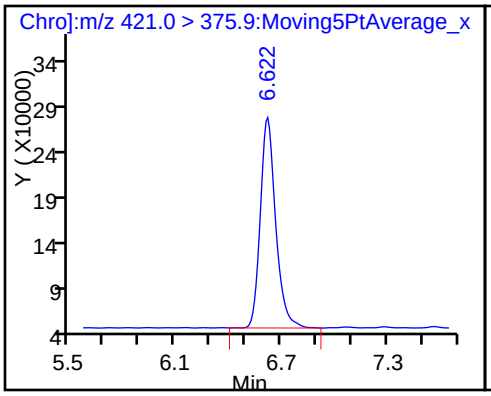
8 Perfluoroheptanoic acid (ND)



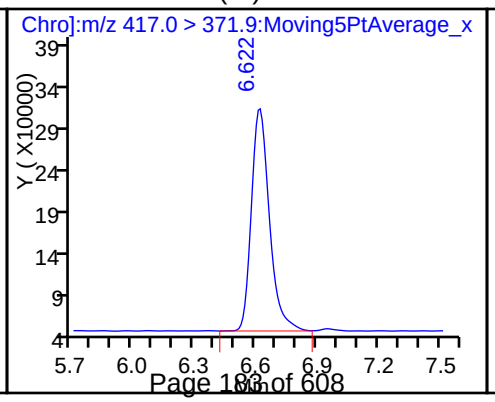
8 Perfluoroheptanoic acid (ND)



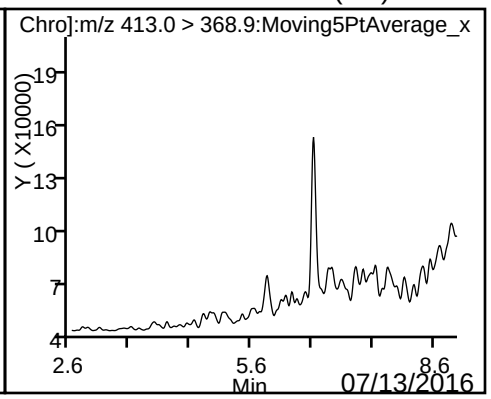
$ 14 13C8 PFOA



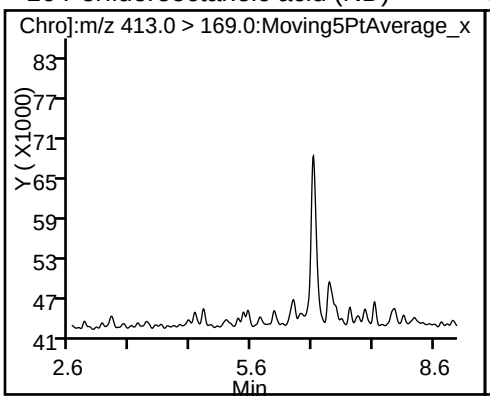
* 15 13C4 PFOA (IS)



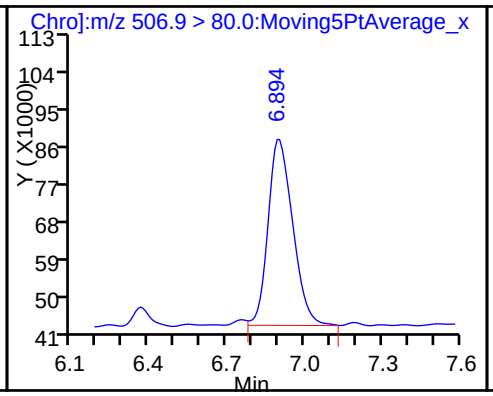
16 Perfluorooctanoic acid (ND)



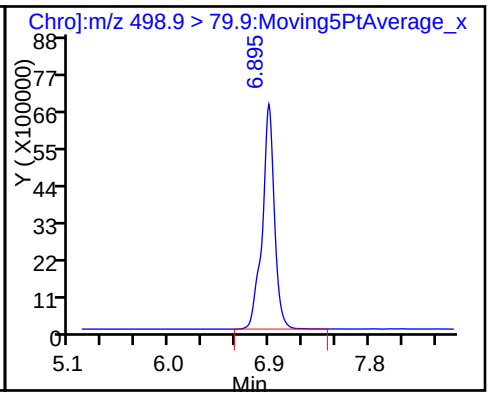
16 Perfluorooctanoic acid (ND)



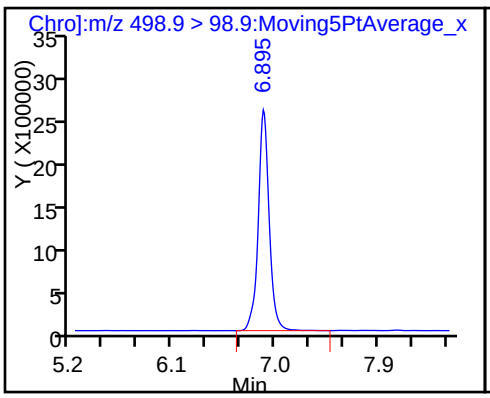
$ 18 13C8 PFOS



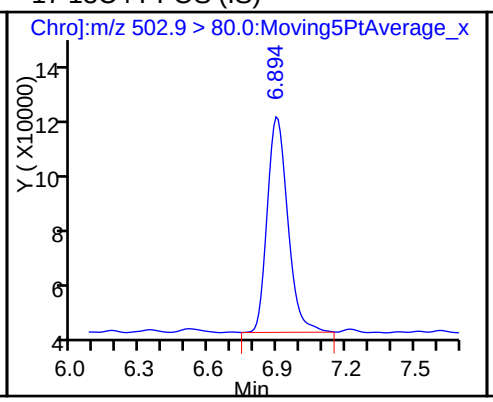
19 Perfluorooctane sulfonic acid



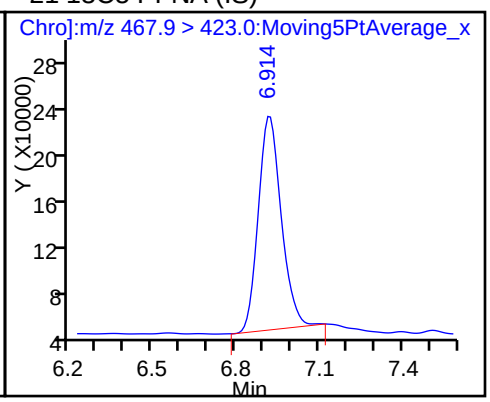
19 Perfluorooctane sulfonic acid



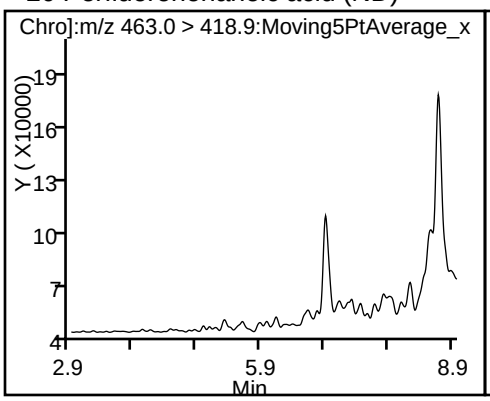
* 17 13C4 PFOS (IS)



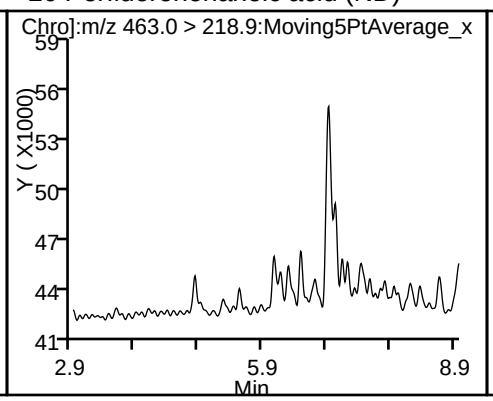
* 21 13C5 PFNA (IS)



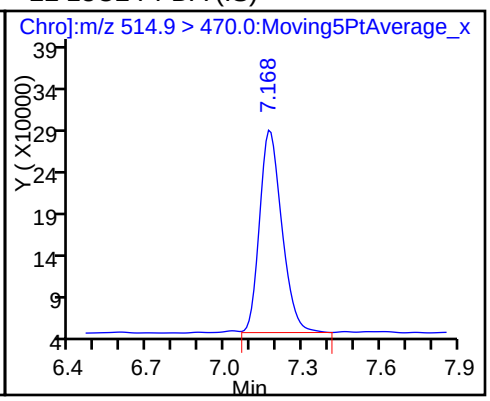
20 Perfluorononanoic acid (ND)



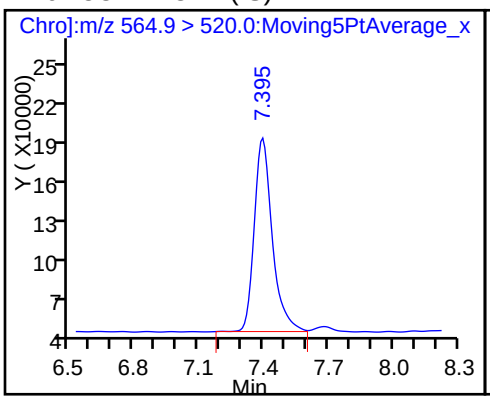
20 Perfluorononanoic acid (ND)



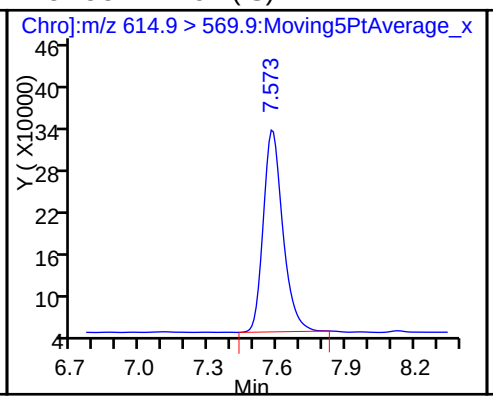
* 22 13C2 PFDA (IS)



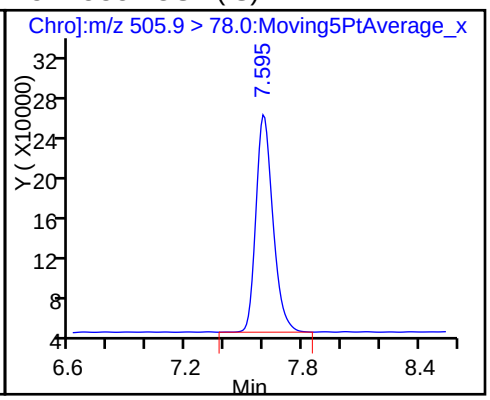
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB009-6.0 | Lab Sample ID: 280-85171-16

Matrix: Solid | Lab File ID: PC516G08017.d

Analysis Method: DV-LC-0012 | Date Collected: 06/30/2016 11:40

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.40(g) | Date Analyzed: 07/08/2016 14:51

Con. Extract Vol.: 20(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 13.0 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 333083 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.15	U	0.88	0.15
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.13	U	0.88	0.13
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.31	U	0.88	0.31
375-95-1	Perfluorononanoic acid (PFNA)	0.24	U	0.88	0.24
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.15	U	0.88	0.15
335-67-1	Perfluorooctanoic acid (PFOA)	0.25	U	0.88	0.25

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	106		57-153
STL01054	13C8 PFOS	100		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08017.d
Lims ID: 280-85171-A-16-A Lab Sample ID: 280-85171-16
Client ID: SB009-6.0
Sample Type: Client
Inject. Date: 08-Jul-2016 14:51:58 ALS Bottle#: 0 Worklist Smp#: 12
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85171-A-16-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 11-Jul-2016 11:14:20 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK031

First Level Reviewer: fiedlerh Date: 11-Jul-2016 10:57:44

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.181	4.266	-0.085		28263520	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.374				ND			
298.9 > 98.9		5.374							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.837	5.847	-0.010		20665044	10.0			
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.282				ND			
363.0 > 168.9		6.282							
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.272	6.282	-0.010		2298560	9.46			
10 Perfluorohexane Sulfonate									
398.9 > 80.0		6.282				ND			
398.9 > 98.9		6.282							
16 Perfluorooctanoic acid									
413.0 > 368.9		6.632				ND			
413.0 > 169.0		6.632							
$ 14 13C8 PFOA									
421.0 > 375.9	6.622	6.631	-0.009	1.000	27265835	10.4			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.622	6.631	-0.009		32579011	10.0			
$ 18 13C8 PFOS									
506.9 > 80.0	6.894	6.903	-0.009	1.000	5370735	9.26			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.894	6.913	-0.019		9071912	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9		6.904				ND			
498.9 > 98.9		6.904							

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
20 Perfluorononanoic acid									
463.0 > 418.9		6.933				ND			
463.0 > 218.9		6.933							
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.914	6.933	-0.019		26808370	10.0			
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.168	7.177	-0.009		27676719	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.385	7.395	-0.010		16999350	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.564	7.583	-0.019		35820771	10.0			
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.576	7.605	-0.029		23490881	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

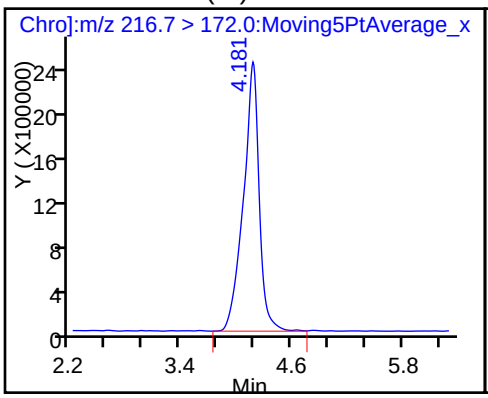
Report Date: 11-Jul-2016 11:14:39 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

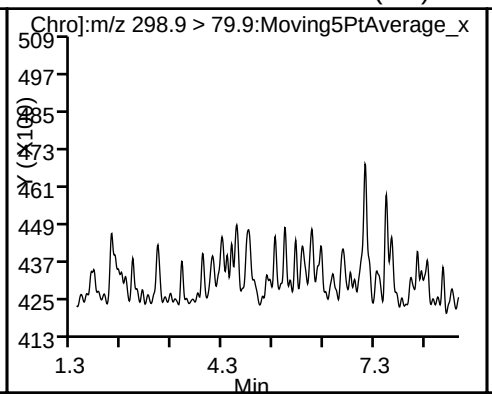
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08017.d

Injection Date:	08-Jul-2016 14:51:58	Instrument ID:	LC_LCMS5		
Lims ID:	280-85171-A-16-A	Lab Sample ID:	280-85171-16		
Client ID:	SB009-6.0				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	12
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

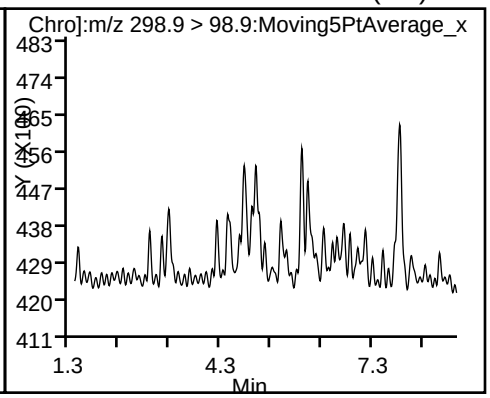
* 1 13C4 PFBA (IS)



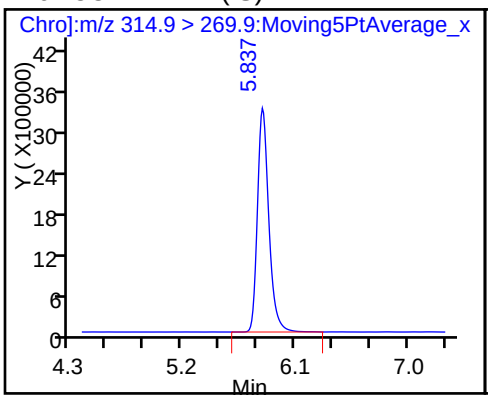
4 Perfluorobutane Sulfonate (ND)



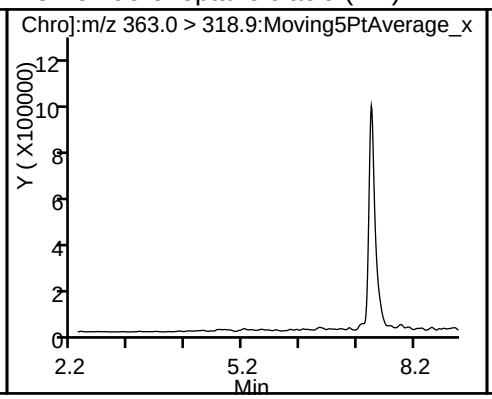
4 Perfluorobutane Sulfonate (ND)



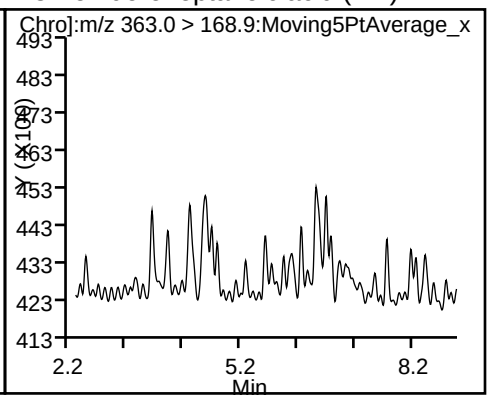
* 6 13C2 PFHxA (IS)



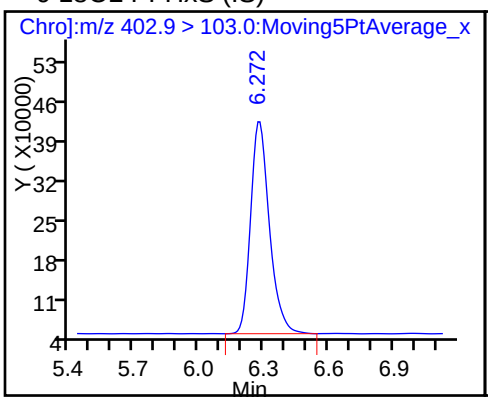
8 Perfluoroheptanoic acid (ND)



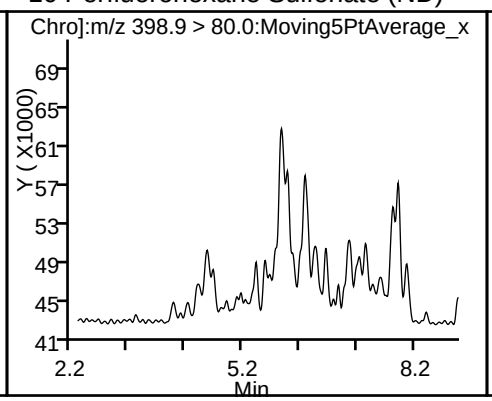
8 Perfluoroheptanoic acid (ND)



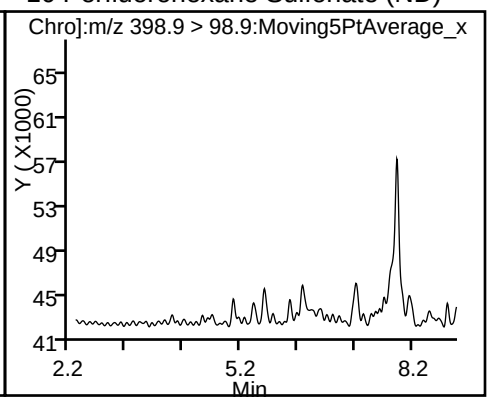
* 9 18O2 PFHxS (IS)



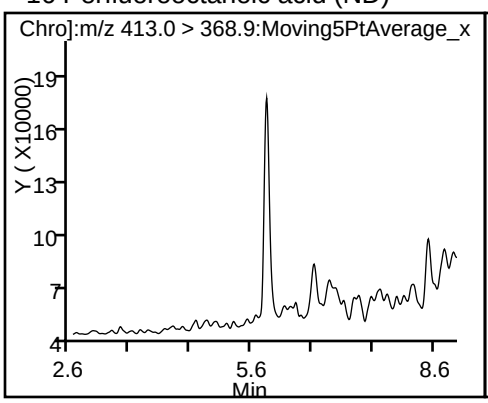
10 Perfluorohexane Sulfonate (ND)



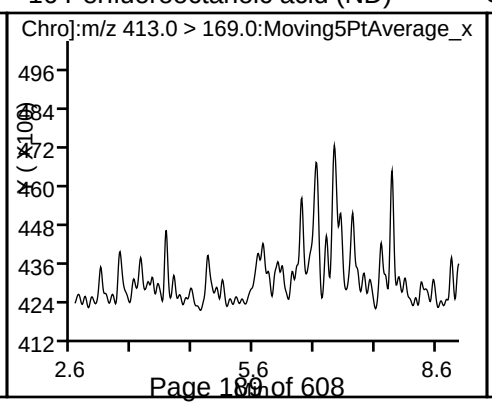
10 Perfluorohexane Sulfonate (ND)



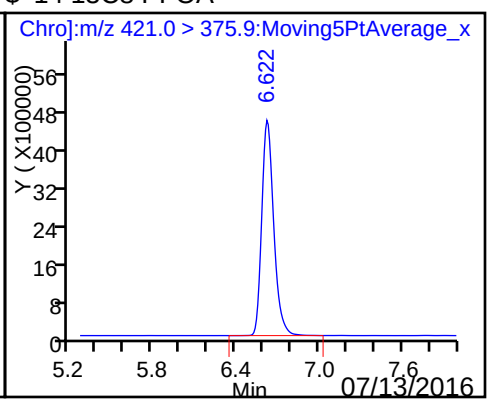
16 Perfluorooctanoic acid (ND)



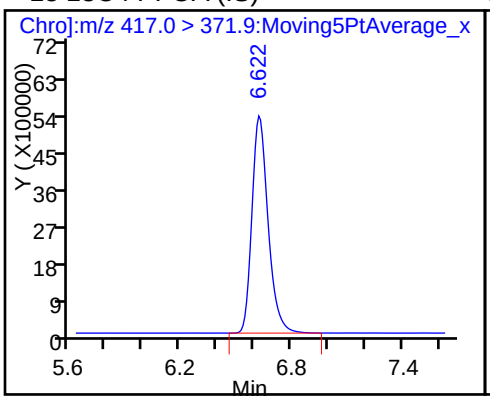
16 Perfluorooctanoic acid (ND)



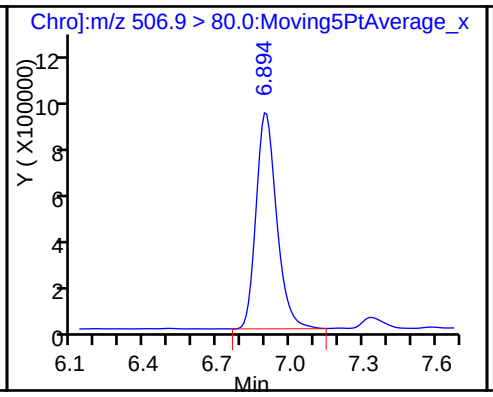
$ 14 13C8 PFOA



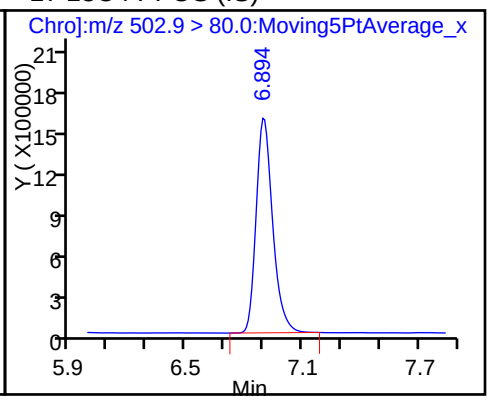
* 15 13C4 PFOA (IS)



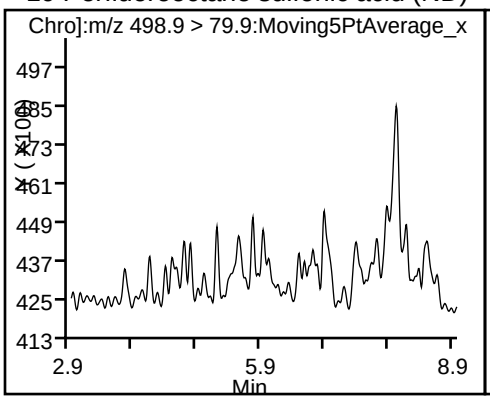
$ 18 13C8 PFOS



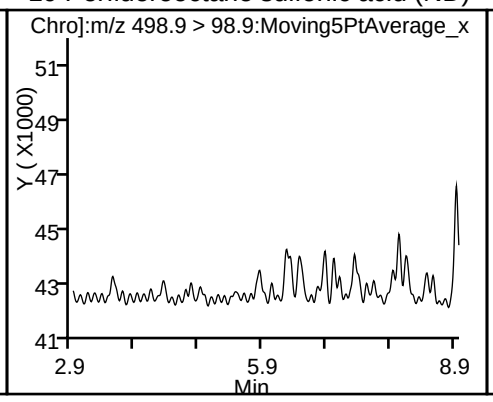
* 17 13C4 PFOS (IS)



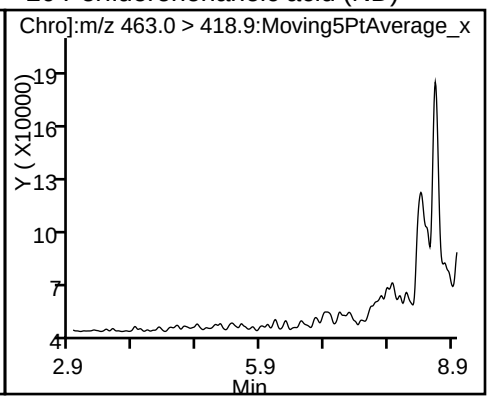
19 Perfluorooctane sulfonic acid (ND)



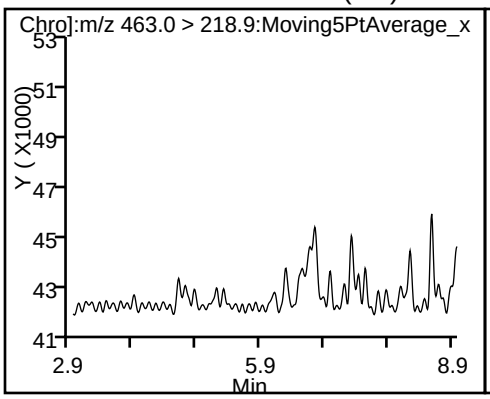
19 Perfluorooctane sulfonic acid (ND)



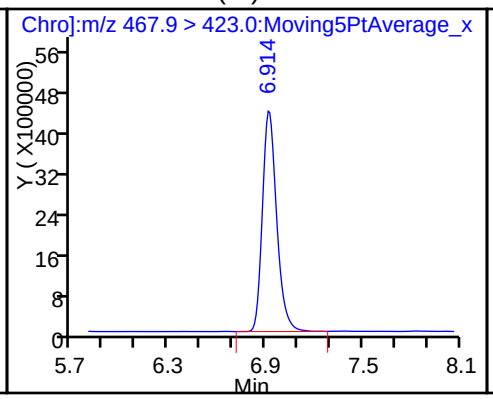
20 Perfluorononanoic acid (ND)



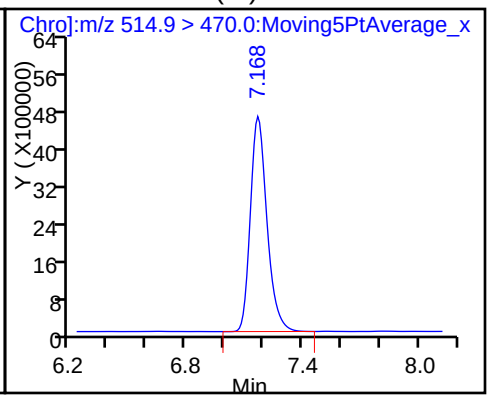
20 Perfluorononanoic acid (ND)



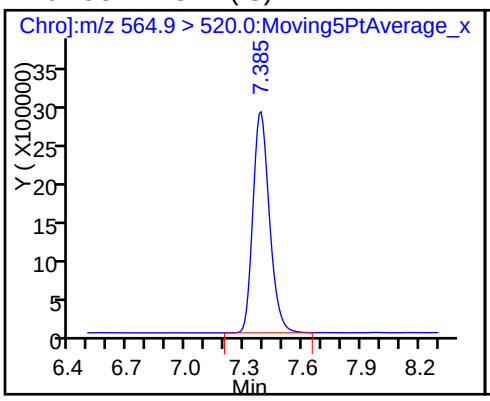
* 21 13C5 PFNA (IS)



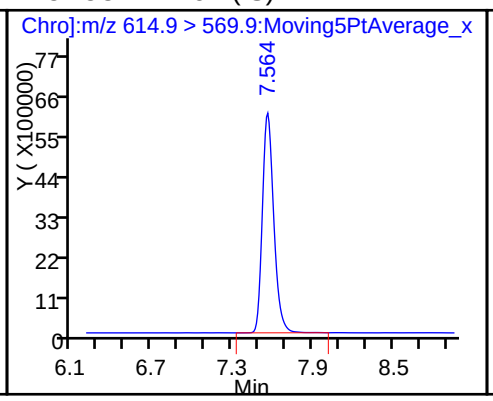
* 22 13C2 PFDA (IS)



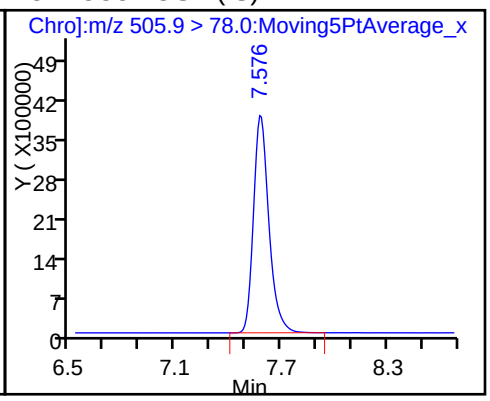
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB009-10.5 | Lab Sample ID: 280-85171-17

Matrix: Solid | Lab File ID: PC516G08018.d

Analysis Method: DV-LC-0012 | Date Collected: 06/30/2016 11:45

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.91(g) | Date Analyzed: 07/08/2016 15:04

Con. Extract Vol.: 20(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 11.9 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 333083 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.15	U	0.83	0.15
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.12	U	0.83	0.12
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.29	U	0.83	0.29
375-95-1	Perfluorononanoic acid (PFNA)	0.23	U	0.83	0.23
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.15	U	0.83	0.15
335-67-1	Perfluorooctanoic acid (PFOA)	0.24	U	0.83	0.24

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	105		57-153
STL01054	13C8 PFOS	103		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08018.d
Lims ID: 280-85171-A-17-A Lab Sample ID: 280-85171-17
Client ID: SB009-10.5
Sample Type: Client
Inject. Date: 08-Jul-2016 15:04:16 ALS Bottle#: 0 Worklist Smp#: 13
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85171-A-17-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 11-Jul-2016 11:14:20 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK031

First Level Reviewer: fiedlerh Date: 11-Jul-2016 10:58:07

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.323	4.266	0.057		23503834	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.374				ND			
298.9 > 98.9		5.374							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.951	5.847	0.104		19528973	10.0			
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.282				ND			
363.0 > 168.9		6.282							
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.386	6.282	0.104		2373530	9.46			
10 Perfluorohexane Sulfonate									
398.9 > 80.0		6.282				ND			
398.9 > 98.9		6.282							
16 Perfluorooctanoic acid									
413.0 > 368.9		6.632				ND			
413.0 > 169.0		6.632							
$ 14 13C8 PFOA									
421.0 > 375.9	6.716	6.631	0.085	1.000	24680989	10.3			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.717	6.631	0.086		29763897	10.0			
$ 18 13C8 PFOS									
506.9 > 80.0	6.979	6.903	0.076	1.000	5240685	9.55			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.980	6.913	0.067		8584071	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9		6.904				ND			
498.9 > 98.9		6.904							

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
20 Perfluorononanoic acid									
463.0 > 418.9		6.933				ND			
463.0 > 218.9		6.933							
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.999	6.933	0.066		22413122	10.0			
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.244	7.177	0.067		24895406	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.442	7.395	0.047		14682386	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.621	7.583	0.038		32026882	10.0			
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.652	7.605	0.047		24607912	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

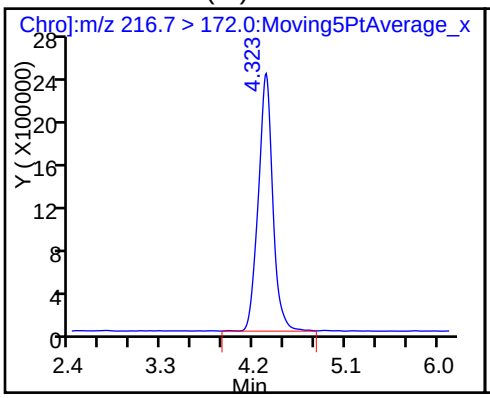
Report Date: 11-Jul-2016 11:14:36 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

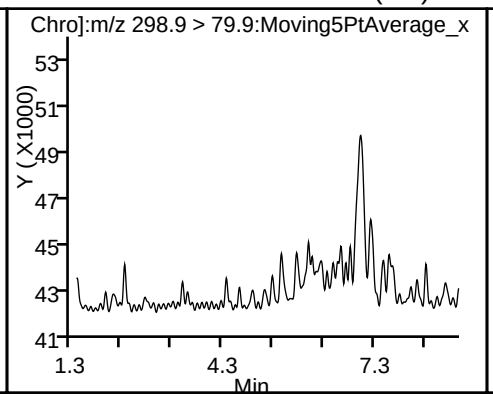
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08018.d

Injection Date:	08-Jul-2016 15:04:16	Instrument ID:	LC_LCMS5		
Lims ID:	280-85171-A-17-A	Lab Sample ID:	280-85171-17		
Client ID:	SB009-10.5				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	13
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

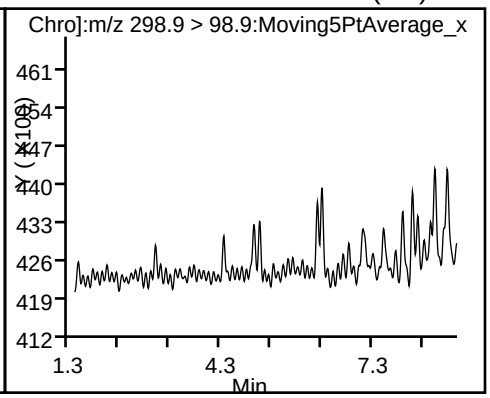
* 1 13C4 PFBA (IS)



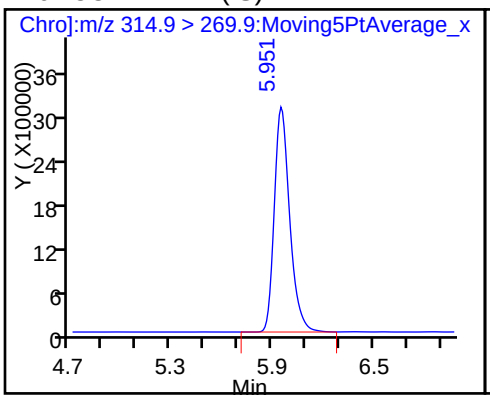
4 Perfluorobutane Sulfonate (ND)



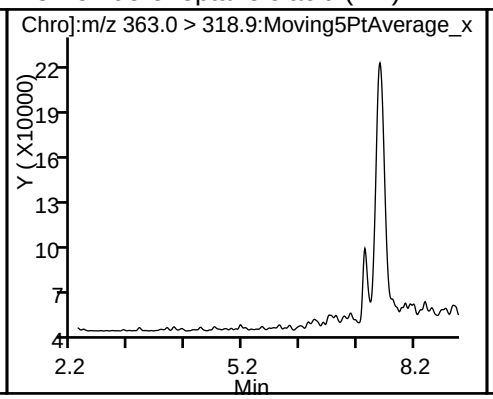
4 Perfluorobutane Sulfonate (ND)



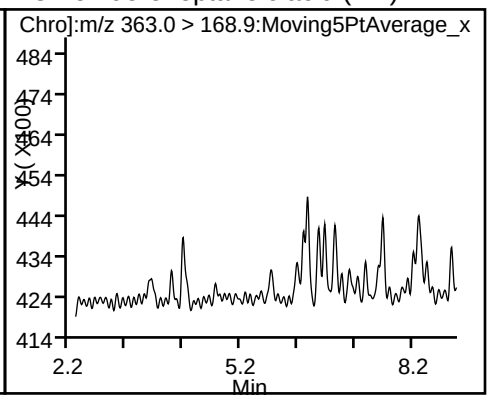
* 6 13C2 PFHxA (IS)



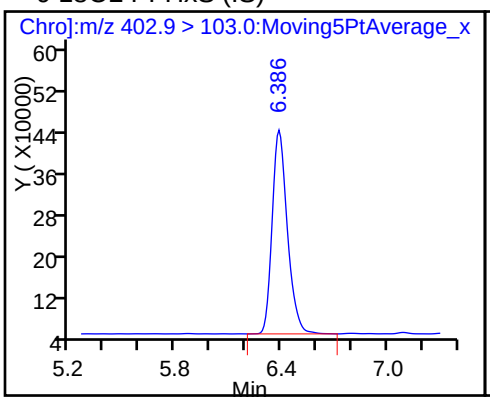
8 Perfluoroheptanoic acid (ND)



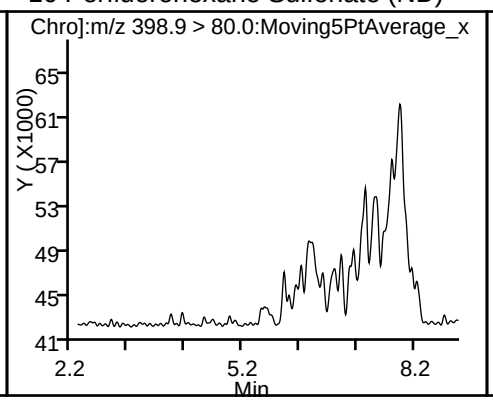
8 Perfluoroheptanoic acid (ND)



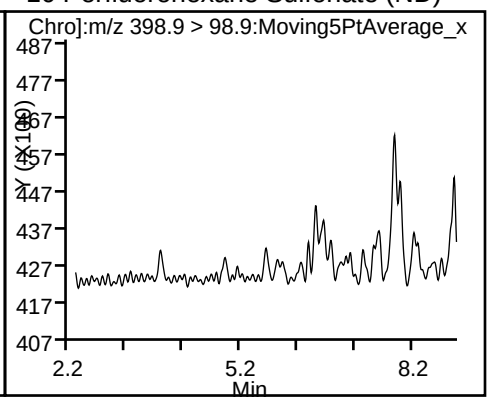
* 9 18O2 PFHxS (IS)



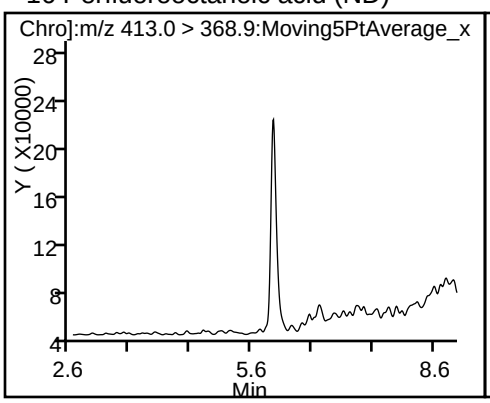
10 Perfluorohexane Sulfonate (ND)



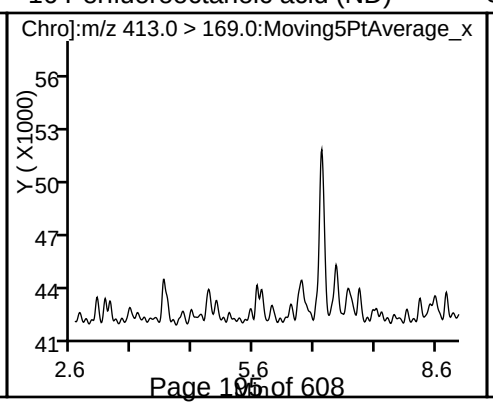
10 Perfluorohexane Sulfonate (ND)



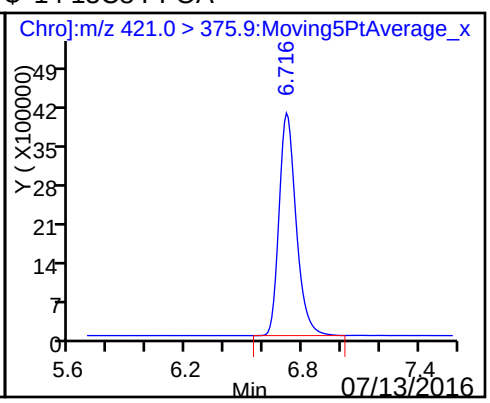
16 Perfluorooctanoic acid (ND)



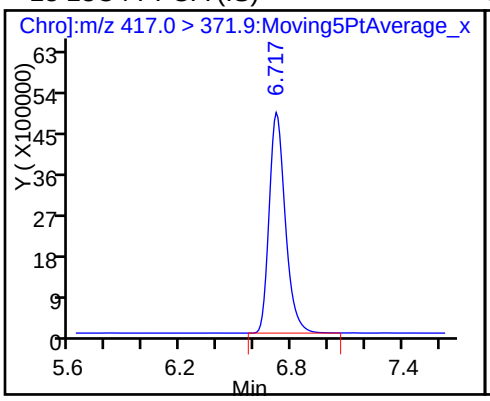
16 Perfluorooctanoic acid (ND)



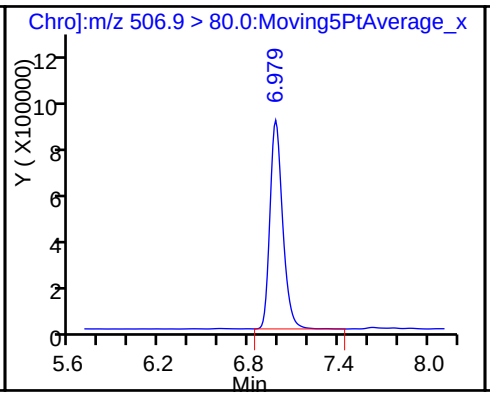
$ 14 13C8 PFOA



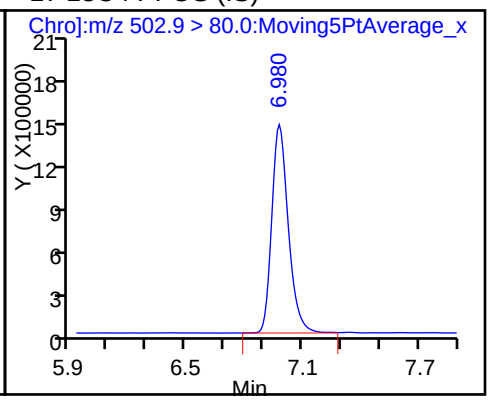
* 15 13C4 PFOA (IS)



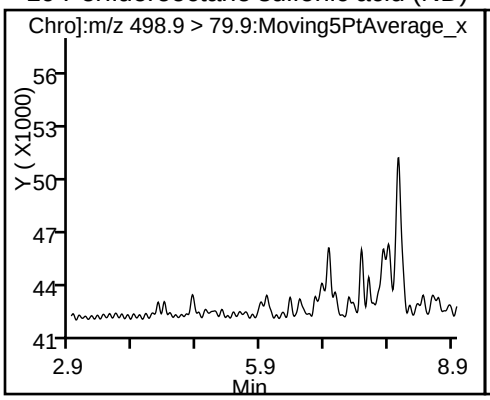
$ 18 13C8 PFOS



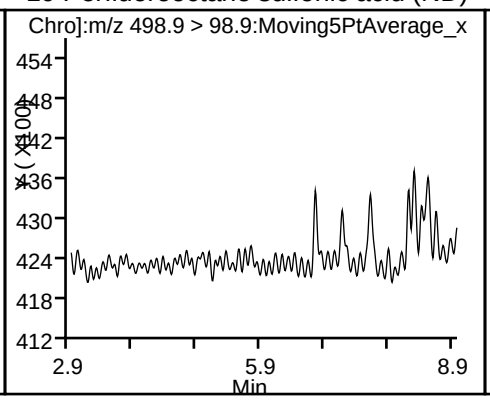
* 17 13C4 PFOS (IS)



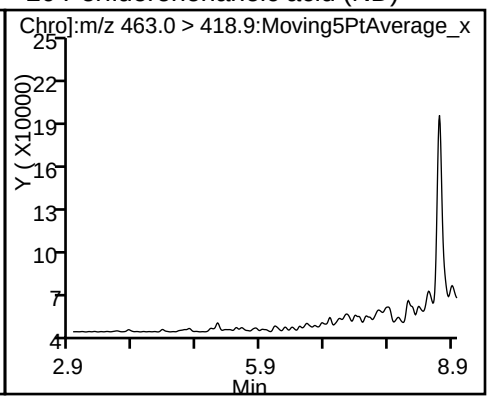
19 Perfluorooctane sulfonic acid (ND)



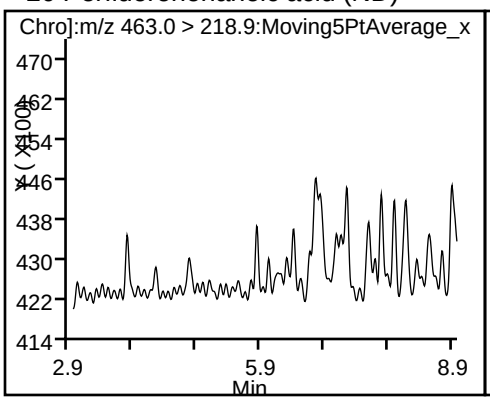
19 Perfluorooctane sulfonic acid (ND)



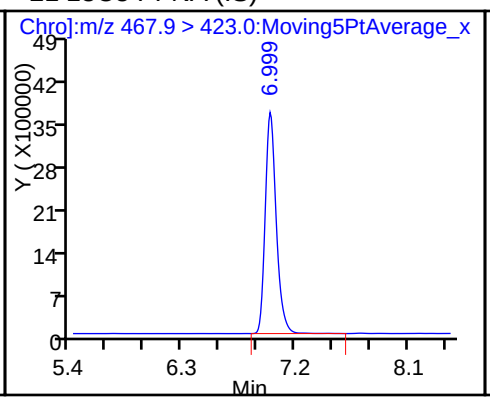
20 Perfluorononanoic acid (ND)



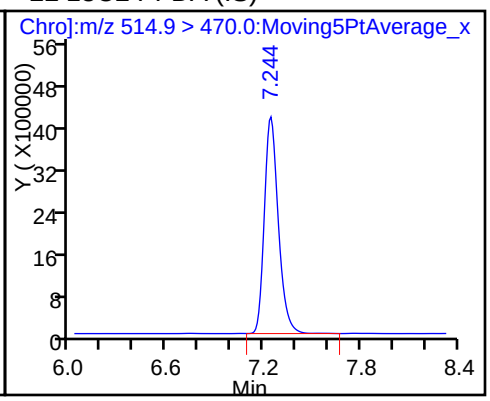
20 Perfluorononanoic acid (ND)



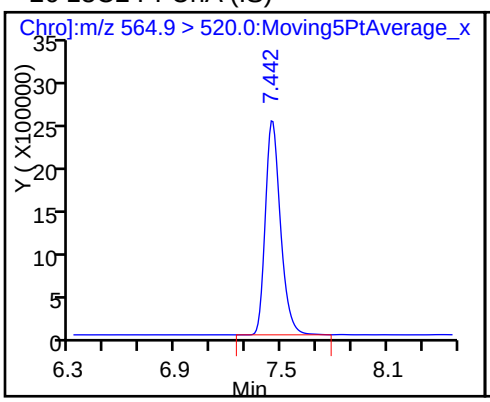
* 21 13C5 PFNA (IS)



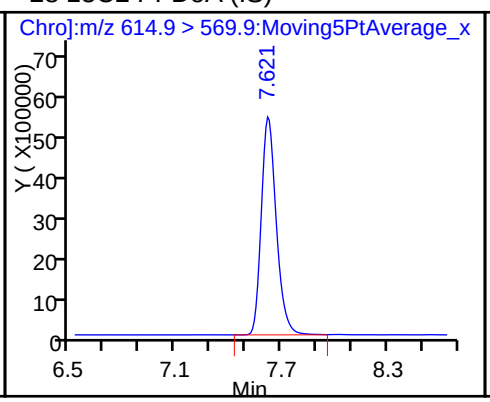
* 22 13C2 PFDA (IS)



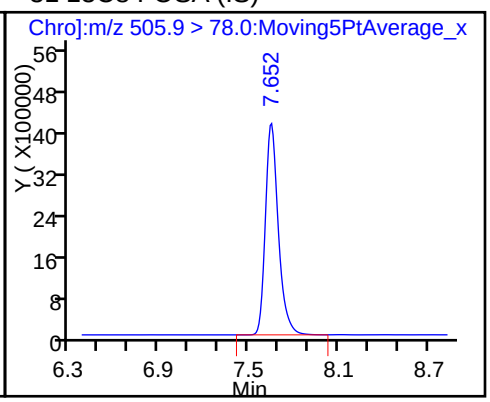
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB008-6.0 | Lab Sample ID: 280-85171-18

Matrix: Solid | Lab File ID: PC516G08019.d

Analysis Method: DV-LC-0012 | Date Collected: 06/30/2016 12:20

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.06(g) | Date Analyzed: 07/08/2016 15:16

Con. Extract Vol.: 20(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 9.3 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 333083 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.15	U	0.88	0.15
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.13	U	0.88	0.13
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.31	U	0.88	0.31
375-95-1	Perfluorononanoic acid (PFNA)	0.24	U	0.88	0.24
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.15	U	0.88	0.15
335-67-1	Perfluorooctanoic acid (PFOA)	0.25	U	0.88	0.25

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	103		57-153
STL01054	13C8 PFOS	99		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08019.d
Lims ID: 280-85171-A-18-A Lab Sample ID: 280-85171-18
Client ID: SB008-6.0
Sample Type: Client
Inject. Date: 08-Jul-2016 15:16:34 ALS Bottle#: 0 Worklist Smp#: 14
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85171-A-18-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 11-Jul-2016 11:14:20 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK031

First Level Reviewer: fiedlerh Date: 11-Jul-2016 10:58:18

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.219	4.266	-0.047		22963086	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.374				ND			
298.9 > 98.9		5.374							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.847	5.847	0.0		18721064	10.0			
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.282				ND			
363.0 > 168.9		6.282							
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.291	6.282	0.009		2379272	9.46			
10 Perfluorohexane Sulfonate									
398.9 > 80.0		6.282				ND			
398.9 > 98.9		6.282							
16 Perfluorooctanoic acid									
413.0 > 368.9		6.632				ND			
413.0 > 169.0		6.632							
$ 14 13C8 PFOA									
421.0 > 375.9	6.631	6.631	0.0	1.000	25330876	10.1			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.631	6.631	0.0		31079472	10.0			
$ 18 13C8 PFOS									
506.9 > 80.0	6.903	6.903	0.0	1.000	5221848	9.21			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.904	6.913	-0.009		8865132	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9		6.904				ND			
498.9 > 98.9		6.904							

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
20 Perfluorononanoic acid									
463.0 > 418.9		6.933				ND			
463.0 > 218.9		6.933							
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.924	6.933	-0.009		24159209	10.0			
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.168	7.177	-0.009		25564011	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.376	7.395	-0.019		16175413	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.564	7.583	-0.019		32344115	10.0			
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.586	7.605	-0.019		25536191	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

Report Date: 11-Jul-2016 11:14:34 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08019.d

Injection Date: 08-Jul-2016 15:16:34 Instrument ID: LC_LCMS5

Lims ID: 280-85171-A-18-A Lab Sample ID: 280-85171-18

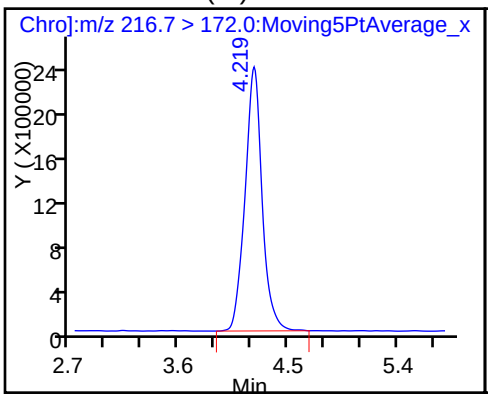
Client ID: SB008-6.0

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 14

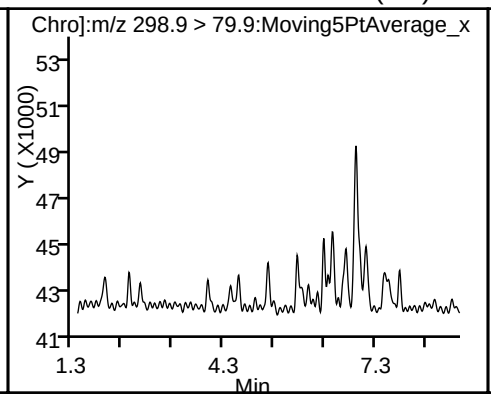
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

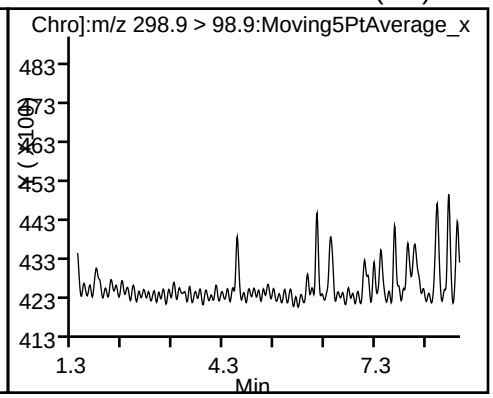
* 1 13C4 PFBA (IS)



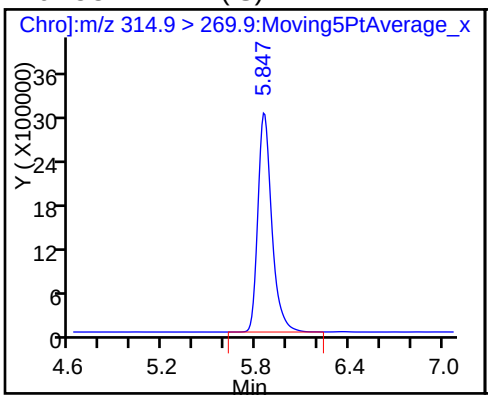
4 Perfluorobutane Sulfonate (ND)



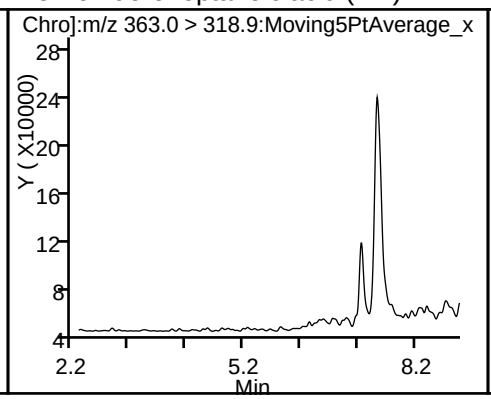
4 Perfluorobutane Sulfonate (ND)



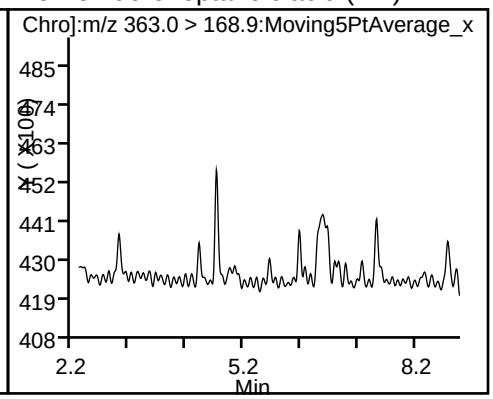
* 6 13C2 PFHxA (IS)



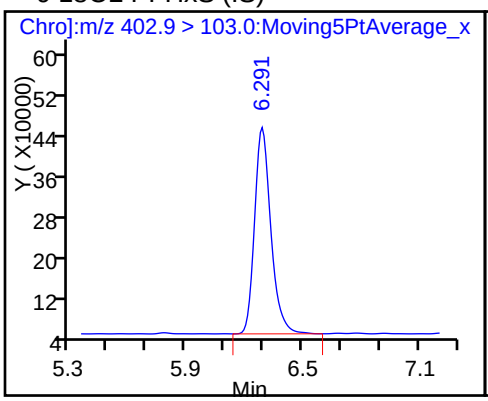
8 Perfluoroheptanoic acid (ND)



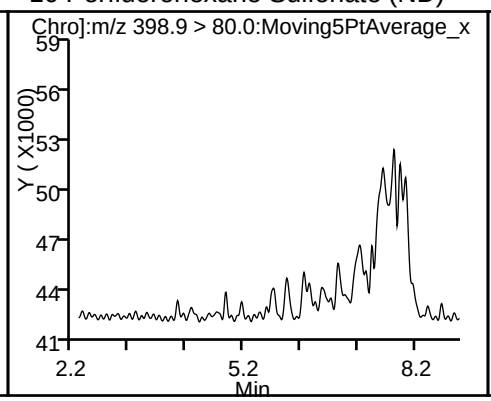
8 Perfluoroheptanoic acid (ND)



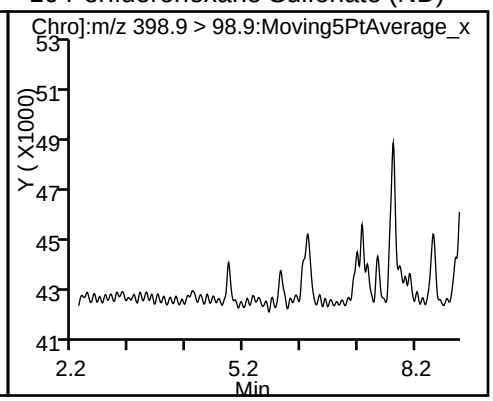
* 9 18O2 PFHxS (IS)



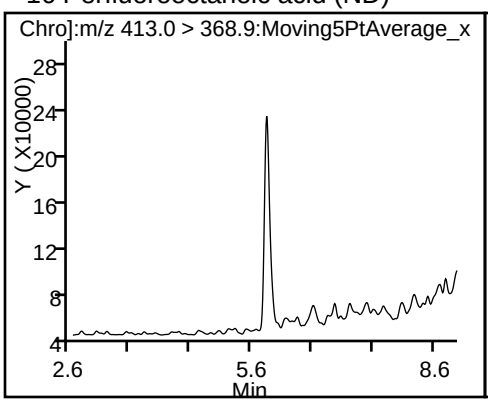
10 Perfluorohexane Sulfonate (ND)



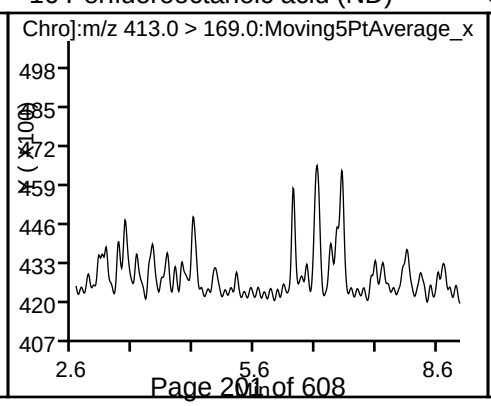
10 Perfluorohexane Sulfonate (ND)



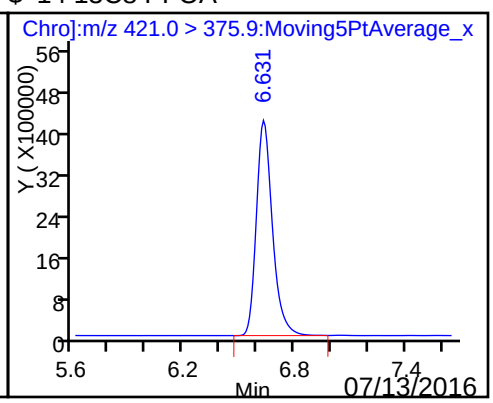
16 Perfluorooctanoic acid (ND)



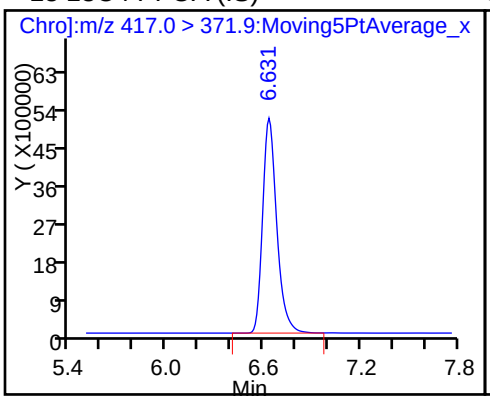
16 Perfluorooctanoic acid (ND)



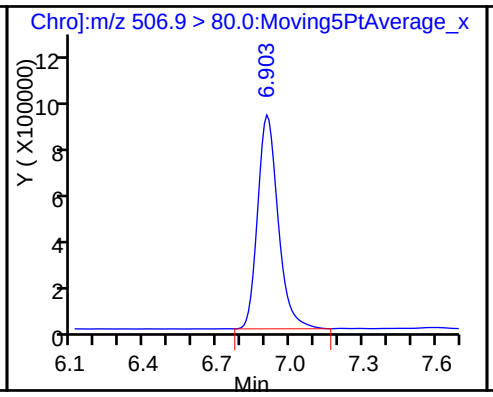
$ 14 13C8 PFOA



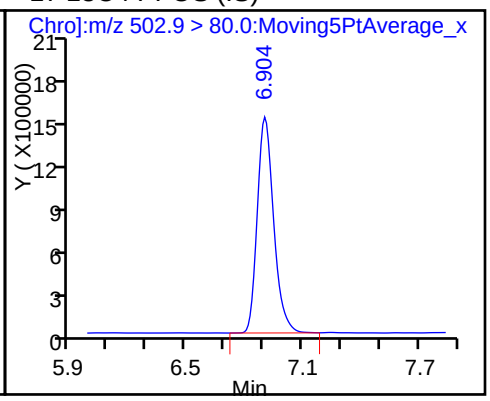
* 15 13C4 PFOA (IS)



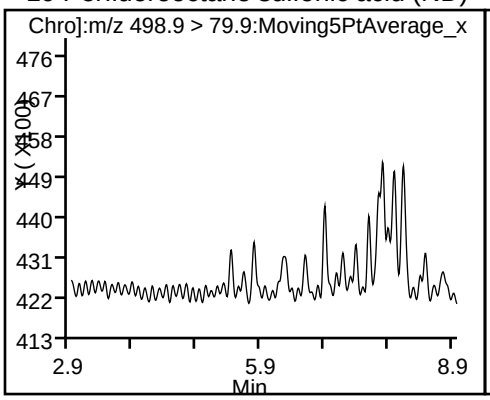
$ 18 13C8 PFOS



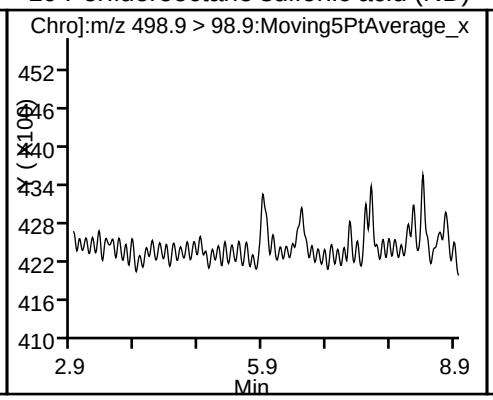
* 17 13C4 PFOS (IS)



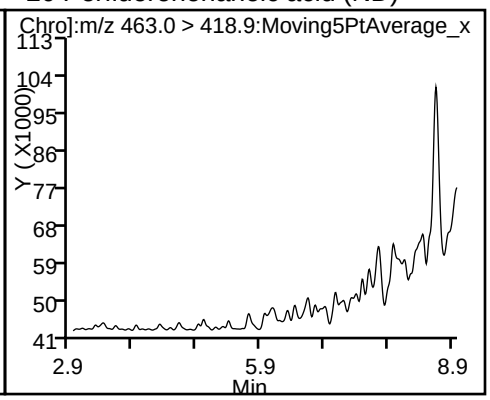
19 Perfluorooctane sulfonic acid (ND)



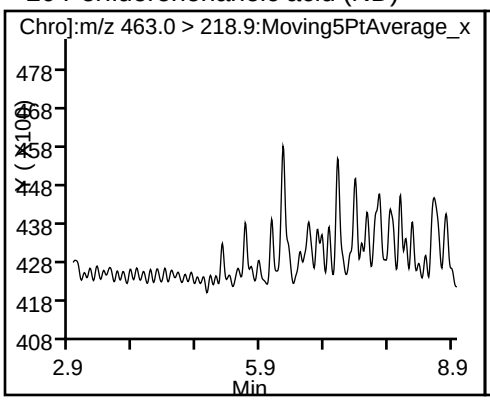
19 Perfluorooctane sulfonic acid (ND)



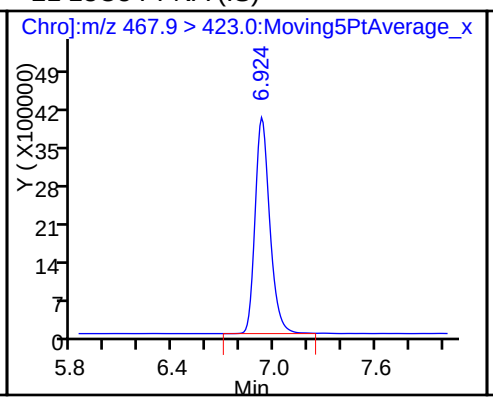
20 Perfluorononanoic acid (ND)



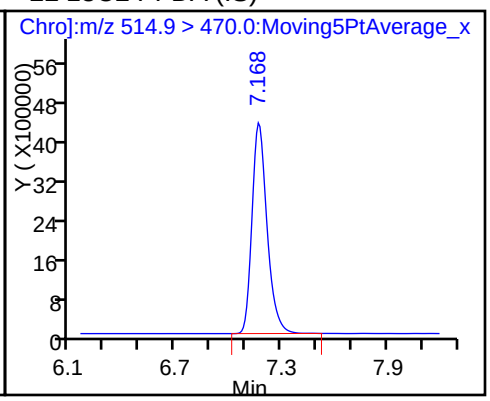
20 Perfluorononanoic acid (ND)



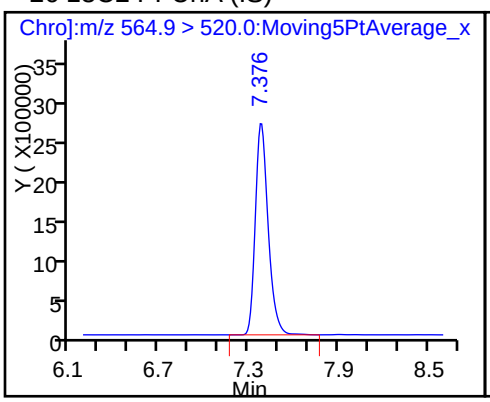
* 21 13C5 PFNA (IS)



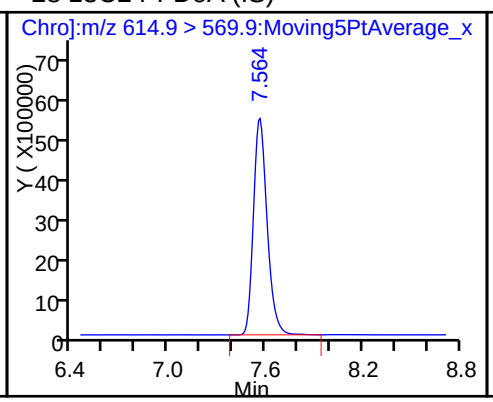
* 22 13C2 PFDA (IS)



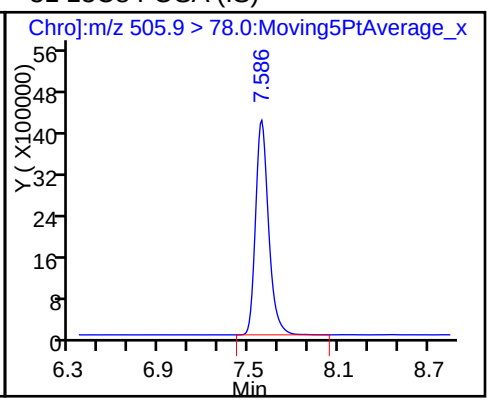
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB008-12.0 | Lab Sample ID: 280-85171-19

Matrix: Solid | Lab File ID: PC516G08020.d

Analysis Method: DV-LC-0012 | Date Collected: 06/30/2016 12:30

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.37(g) | Date Analyzed: 07/08/2016 15:28

Con. Extract Vol.: 20(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 9.0 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 333083 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.15	U	0.85	0.15
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.13	U	0.85	0.13
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.30	U	0.85	0.30
375-95-1	Perfluorononanoic acid (PFNA)	0.23	U	0.85	0.23
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.15	U	0.85	0.15
335-67-1	Perfluorooctanoic acid (PFOA)	0.24	U	0.85	0.24

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	108		57-153
STL01054	13C8 PFOS	112		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08020.d
Lims ID: 280-85171-A-19-A Lab Sample ID: 280-85171-19
Client ID: SB008-12.0
Sample Type: Client
Inject. Date: 08-Jul-2016 15:28:53 ALS Bottle#: 0 Worklist Smp#: 15
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85171-A-19-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 11-Jul-2016 11:14:20 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK031

First Level Reviewer: fiedlerh Date: 11-Jul-2016 10:58:31

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.181	4.266	-0.085		24904389	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.374				ND			
298.9 > 98.9		5.374							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.837	5.847	-0.010		19954900	10.0			
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.282				ND			
363.0 > 168.9		6.282							
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.272	6.282	-0.010		2183171	9.46			
10 Perfluorohexane Sulfonate									
398.9 > 80.0		6.282				ND			
398.9 > 98.9		6.282							
16 Perfluorooctanoic acid									
413.0 > 368.9		6.632				ND			
413.0 > 169.0		6.632							
$ 14 13C8 PFOA									
421.0 > 375.9	6.622	6.631	-0.009	1.000	25970291	10.6			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.622	6.631	-0.009		30438399	10.0			
$ 18 13C8 PFOS									
506.9 > 80.0	6.894	6.903	-0.009	1.000	5202022	10.4			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.894	6.913	-0.019		7859237	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9		6.904				ND			
498.9 > 98.9		6.904							

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
20 Perfluorononanoic acid									
463.0 > 418.9		6.933				ND			
463.0 > 218.9		6.933							
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.914	6.933	-0.019		23977089	10.0			
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.168	7.177	-0.009		25341803	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.376	7.395	-0.019		15843323	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.555	7.583	-0.029		31908388	10.0			
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.576	7.605	-0.029		22674067	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

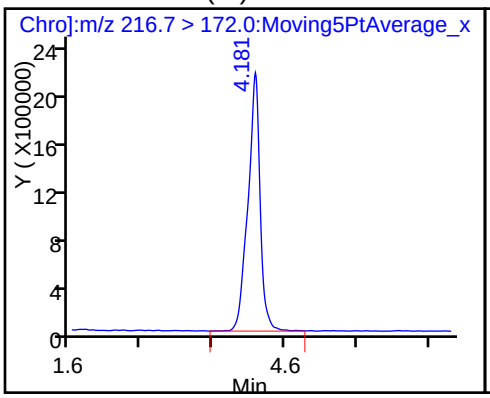
Report Date: 11-Jul-2016 11:14:32 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

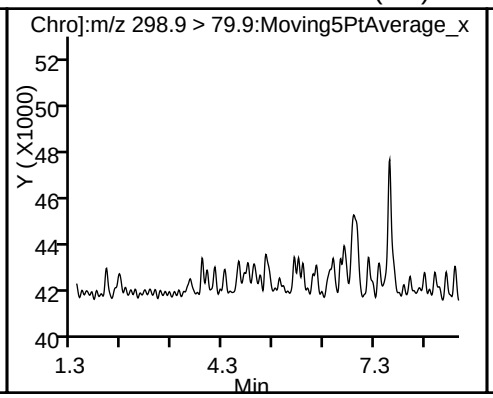
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08020.d

Injection Date:	08-Jul-2016 15:28:53	Instrument ID:	LC_LCMS5		
Lims ID:	280-85171-A-19-A	Lab Sample ID:	280-85171-19		
Client ID:	SB008-12.0				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	15
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

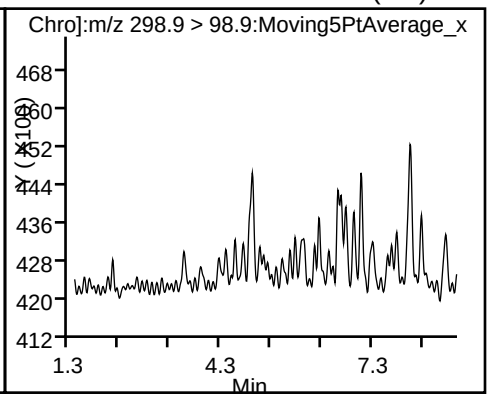
* 1 13C4 PFBA (IS)



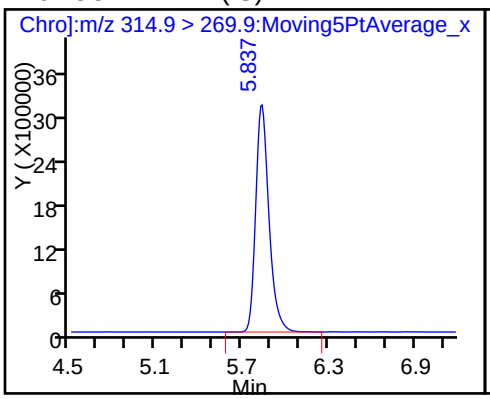
4 Perfluorobutane Sulfonate (ND)



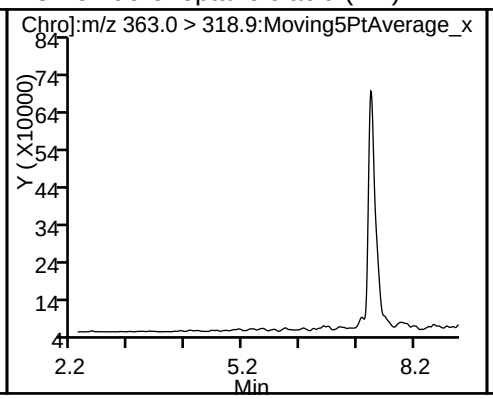
4 Perfluorobutane Sulfonate (ND)



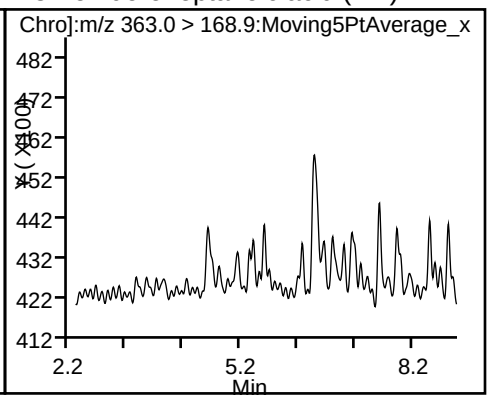
* 6 13C2 PFHxA (IS)



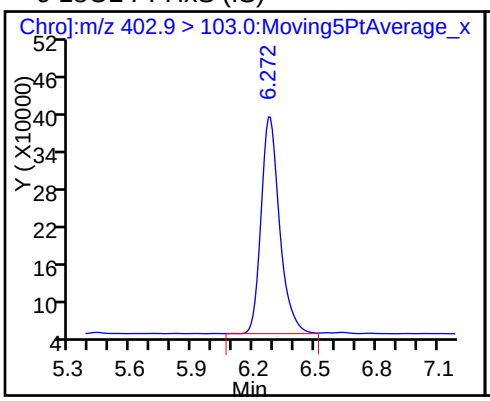
8 Perfluoroheptanoic acid (ND)



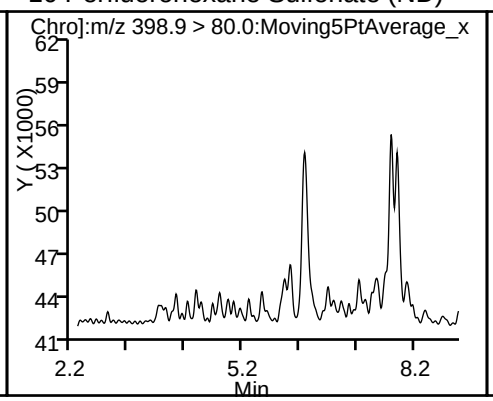
8 Perfluoroheptanoic acid (ND)



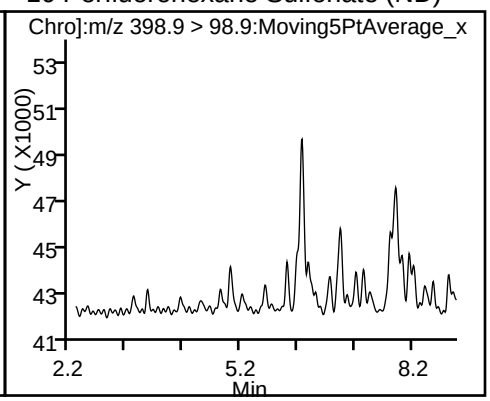
* 9 18O2 PFHxS (IS)



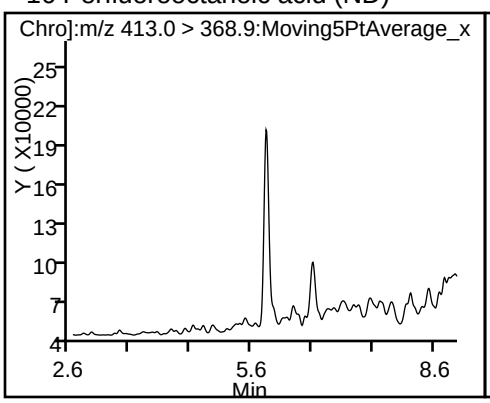
10 Perfluorohexane Sulfonate (ND)



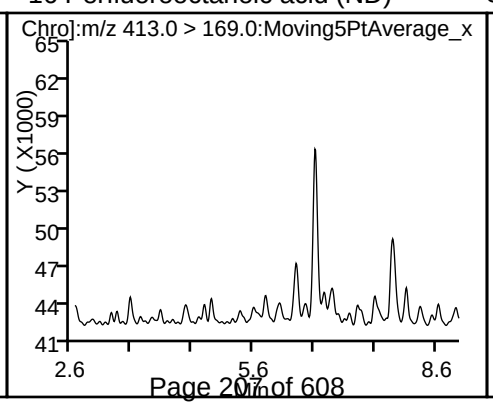
10 Perfluorohexane Sulfonate (ND)



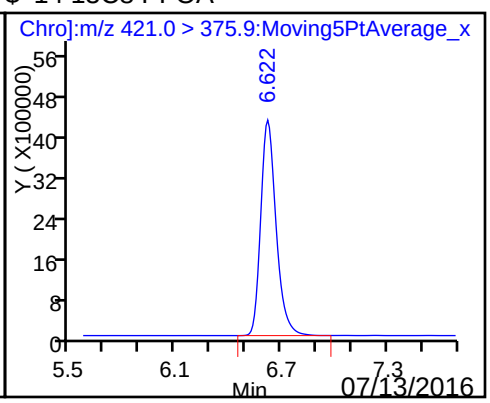
16 Perfluorooctanoic acid (ND)



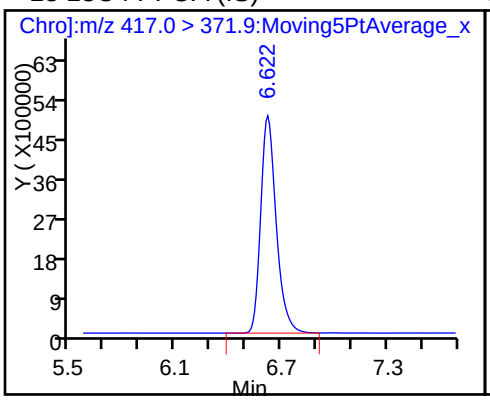
16 Perfluorooctanoic acid (ND)



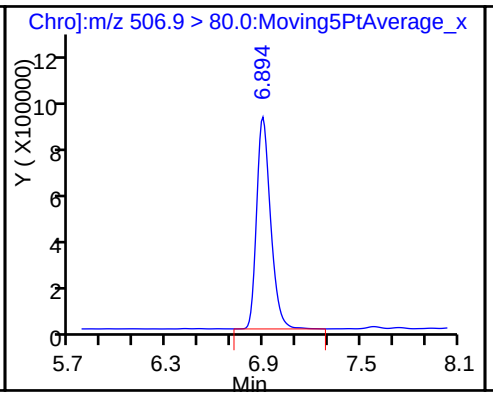
$ 14 13C8 PFOA



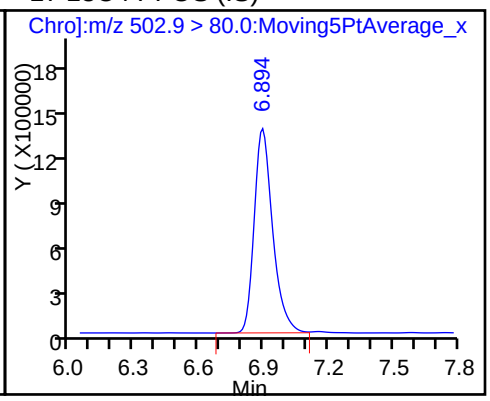
* 15 13C4 PFOA (IS)



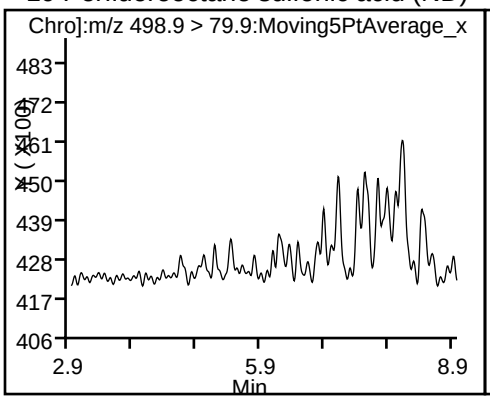
$ 18 13C8 PFOS



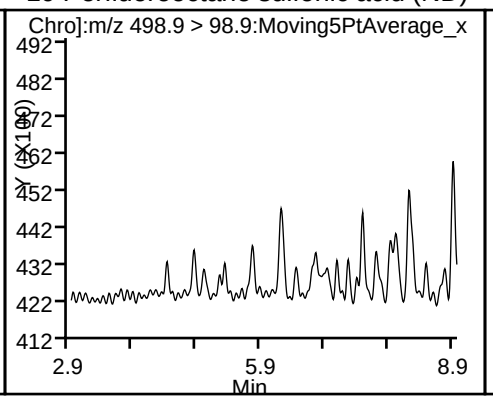
* 17 13C4 PFOS (IS)



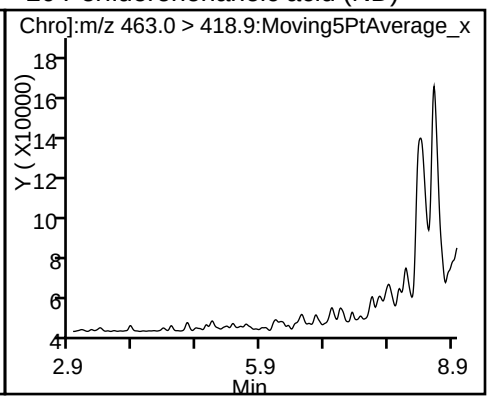
19 Perfluorooctane sulfonic acid (ND)



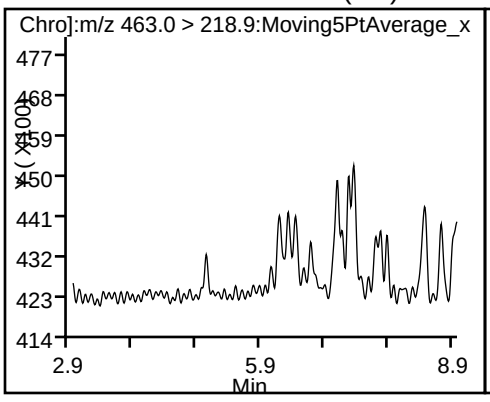
19 Perfluorooctane sulfonic acid (ND)



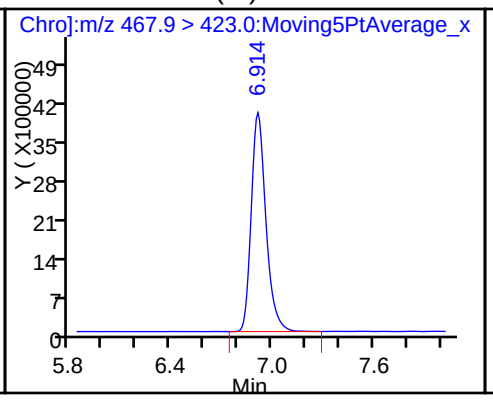
20 Perfluorononanoic acid (ND)



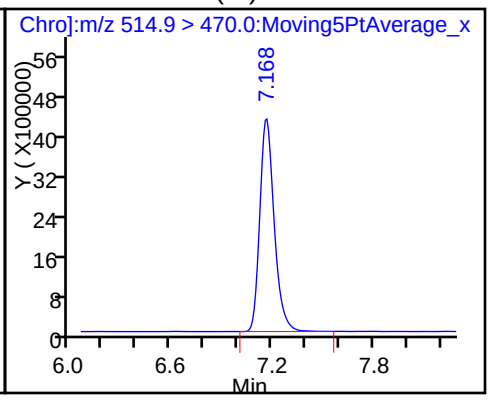
20 Perfluorononanoic acid (ND)



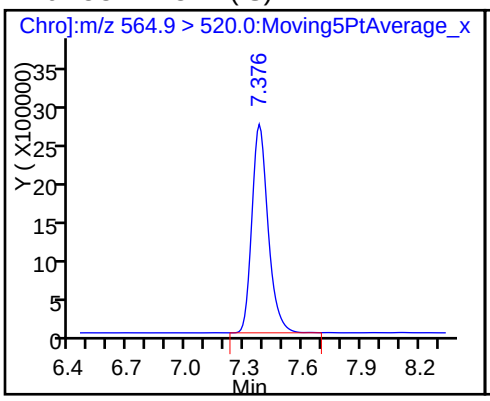
* 21 13C5 PFNA (IS)



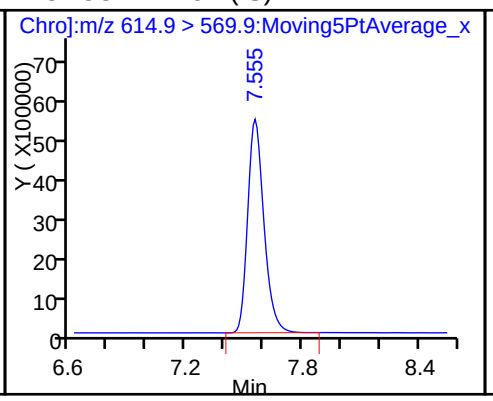
* 22 13C2 PFDA (IS)



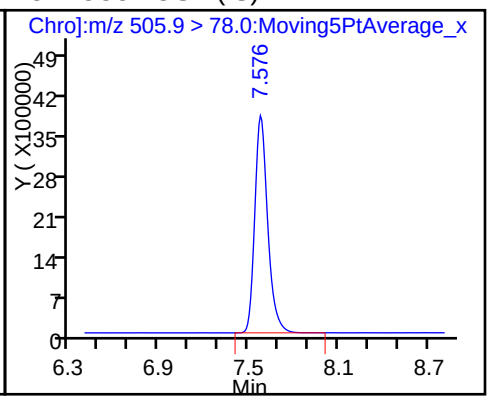
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB002-4.5 | Lab Sample ID: 280-85171-20

Matrix: Solid | Lab File ID: PC516G08021.d

Analysis Method: DV-LC-0012 | Date Collected: 06/30/2016 13:55

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.67(g) | Date Analyzed: 07/08/2016 15:41

Con. Extract Vol.: 20(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 5.9 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 333083 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.14	U	0.80	0.14
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.12	U	0.80	0.12
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.28	U	0.80	0.28
375-95-1	Perfluorononanoic acid (PFNA)	0.22	U	0.80	0.22
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.14	U	0.80	0.14
335-67-1	Perfluorooctanoic acid (PFOA)	0.23	U	0.80	0.23

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	106		57-153
STL01054	13C8 PFOS	108		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08021.d
Lims ID: 280-85171-A-20-A Lab Sample ID: 280-85171-20
Client ID: SB002-4.5
Sample Type: Client
Inject. Date: 08-Jul-2016 15:41:13 ALS Bottle#: 0 Worklist Smp#: 16
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85171-A-20-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 11-Jul-2016 11:14:20 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK031

First Level Reviewer: fiedlerh Date: 11-Jul-2016 10:58:48

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.181	4.266	-0.085		24296346	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.374				ND			
298.9 > 98.9		5.374							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.837	5.847	-0.010		18867992	10.0			
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.282				ND			
363.0 > 168.9		6.282							
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.282	6.282	0.0		2399884	9.46			
10 Perfluorohexane Sulfonate									
398.9 > 80.0		6.282				ND			
398.9 > 98.9		6.282							
16 Perfluorooctanoic acid									
413.0 > 368.9		6.632				ND			
413.0 > 169.0		6.632							
$ 14 13C8 PFOA									
421.0 > 375.9	6.622	6.631	-0.009	1.000	25379203	10.4			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.622	6.631	-0.009		30216727	10.0			
$ 18 13C8 PFOS									
506.9 > 80.0	6.903	6.903	0.0	1.000	5529599	10.0			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.904	6.913	-0.009		8611755	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9		6.904				ND			
498.9 > 98.9		6.904							

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
20 Perfluorononanoic acid									
463.0 > 418.9		6.933				ND			
463.0 > 218.9		6.933							
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.924	6.933	-0.009		24886199	10.0			
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.177	7.177	0.0		26022904	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.395	7.395	0.0		15522358	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.583	7.583	0.0		31485043	10.0			
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.605	7.605	0.0		24995374	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

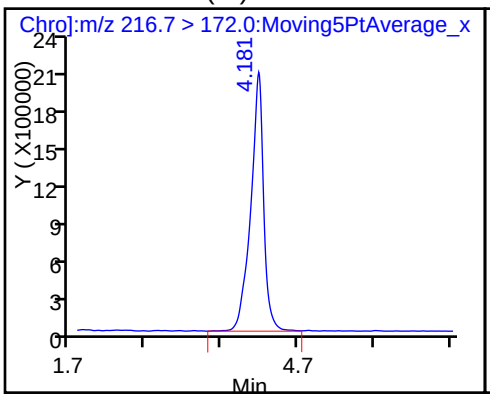
Report Date: 11-Jul-2016 11:14:30 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

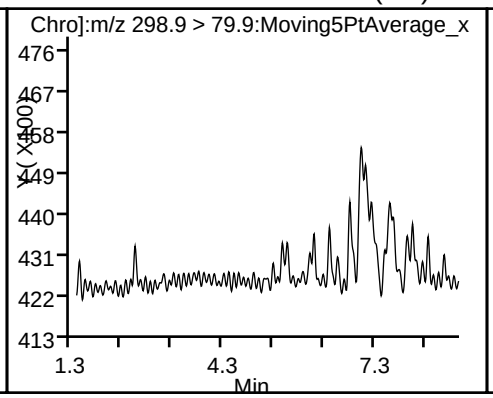
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08021.d

Injection Date:	08-Jul-2016 15:41:13	Instrument ID:	LC_LCMS5		
Lims ID:	280-85171-A-20-A	Lab Sample ID:	280-85171-20		
Client ID:	SB002-4.5				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	16
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

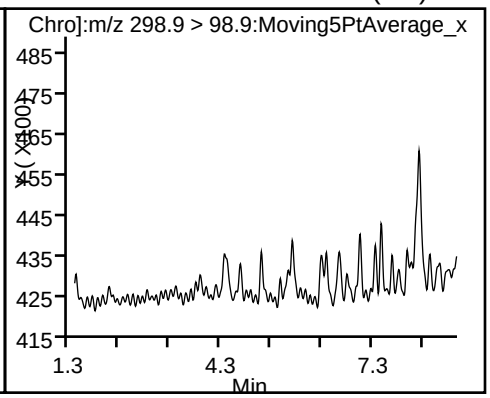
* 1 13C4 PFBA (IS)



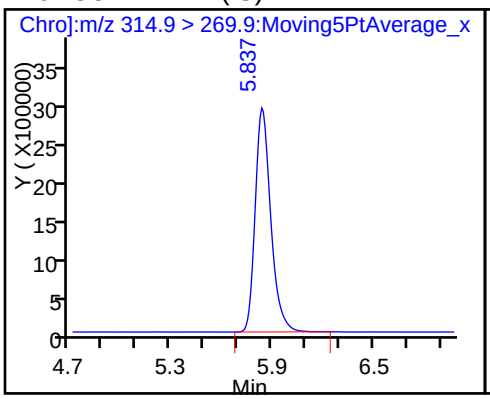
4 Perfluorobutane Sulfonate (ND)



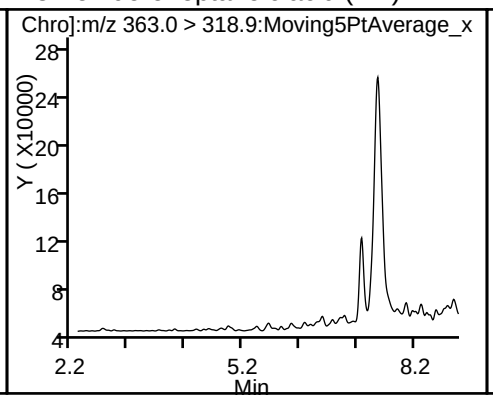
4 Perfluorobutane Sulfonate (ND)



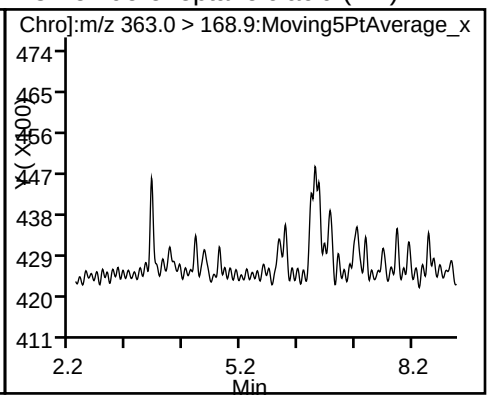
* 6 13C2 PFHxA (IS)



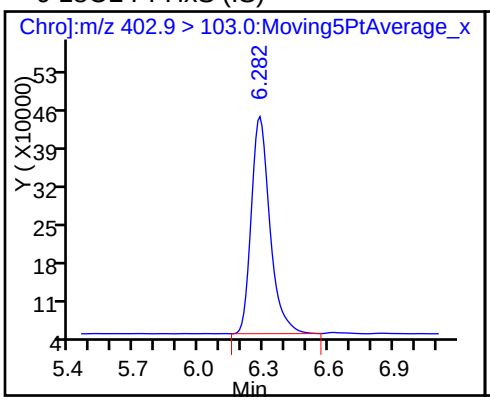
8 Perfluoroheptanoic acid (ND)



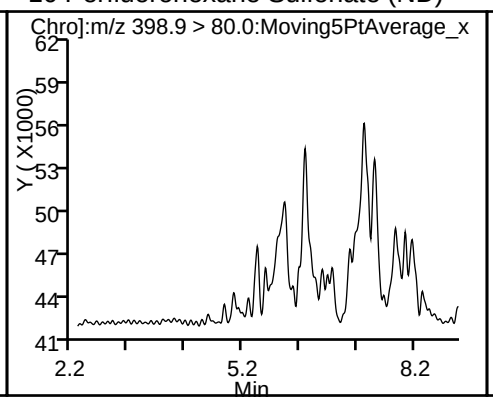
8 Perfluoroheptanoic acid (ND)



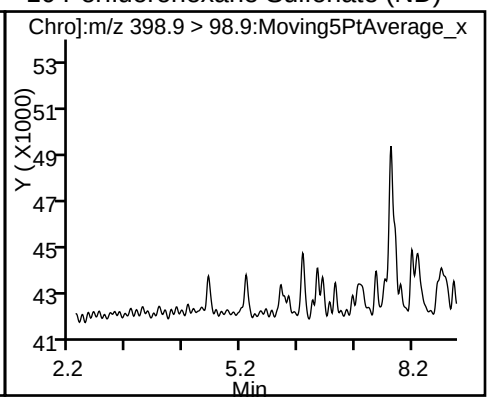
* 9 18O2 PFHxS (IS)



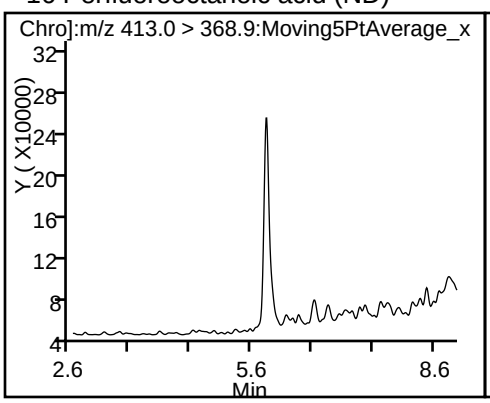
10 Perfluorohexane Sulfonate (ND)



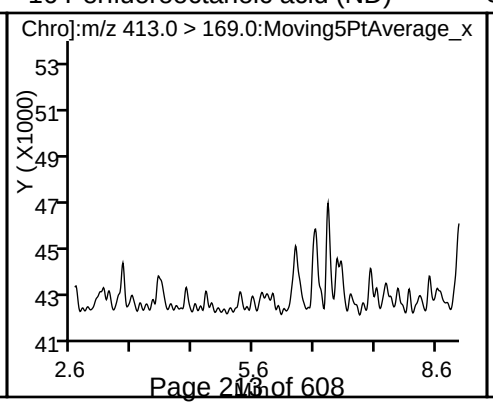
10 Perfluorohexane Sulfonate (ND)



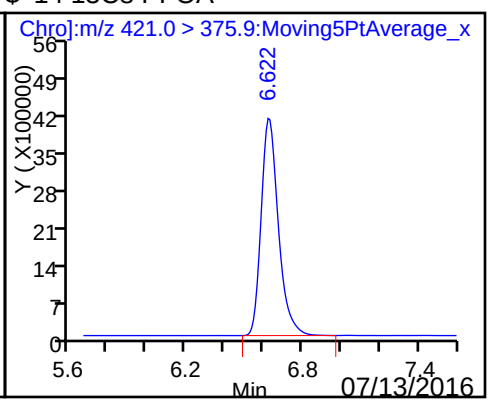
16 Perfluorooctanoic acid (ND)



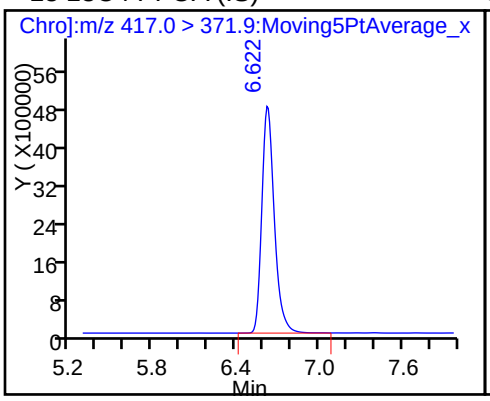
16 Perfluorooctanoic acid (ND)



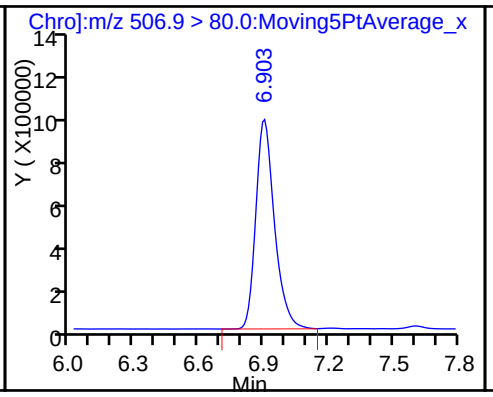
$ 14 13C8 PFOA



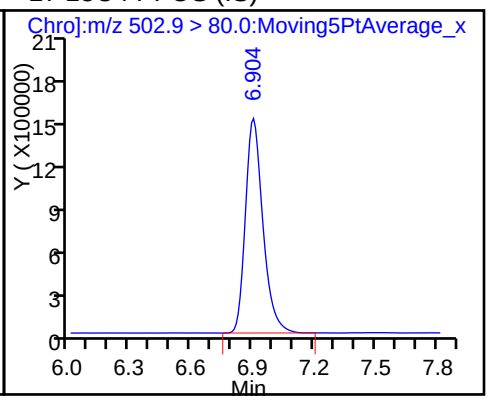
* 15 13C4 PFOA (IS)



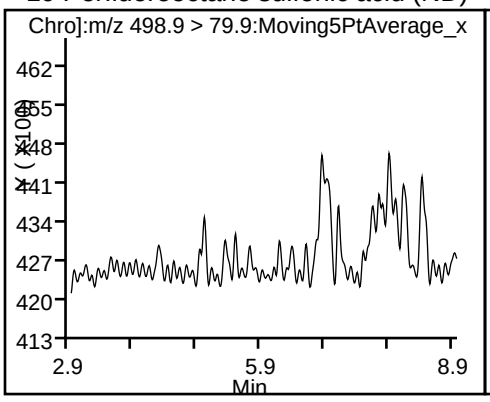
$ 18 13C8 PFOS



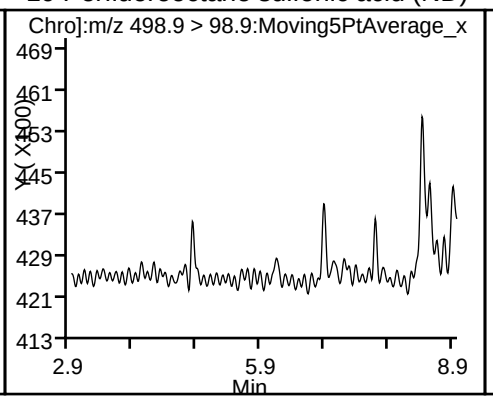
* 17 13C4 PFOS (IS)



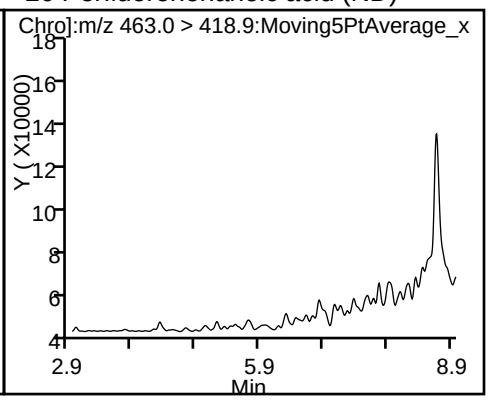
19 Perfluorooctane sulfonic acid (ND)



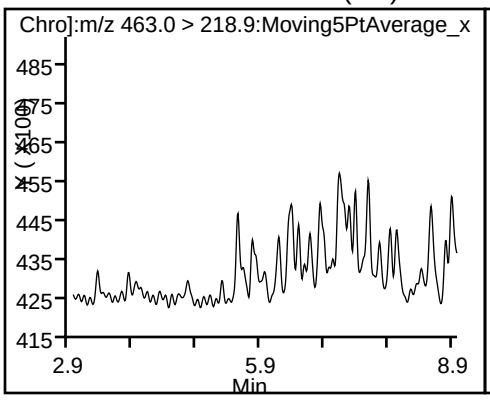
19 Perfluorooctane sulfonic acid (ND)



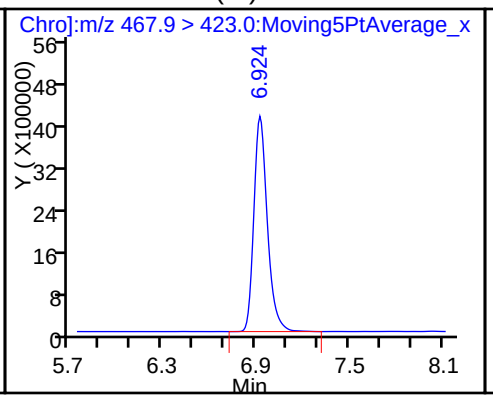
20 Perfluorononanoic acid (ND)



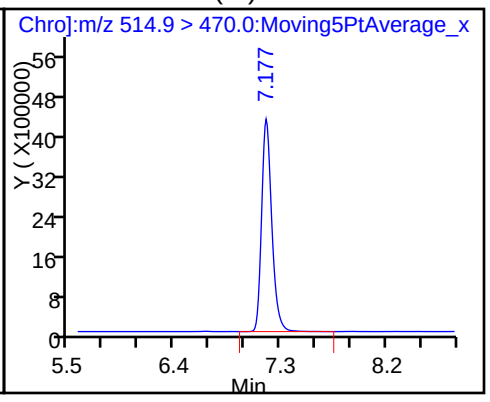
20 Perfluorononanoic acid (ND)



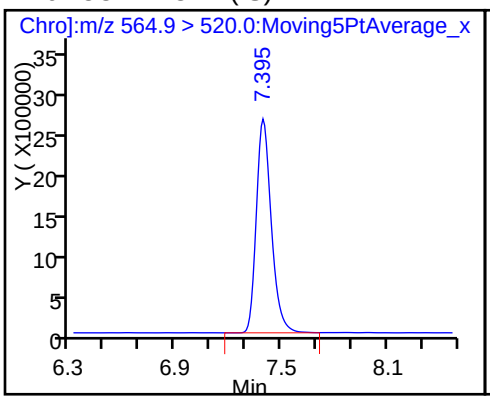
* 21 13C5 PFNA (IS)



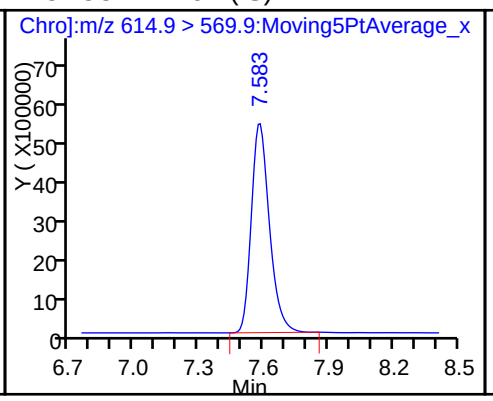
* 22 13C2 PFDA (IS)



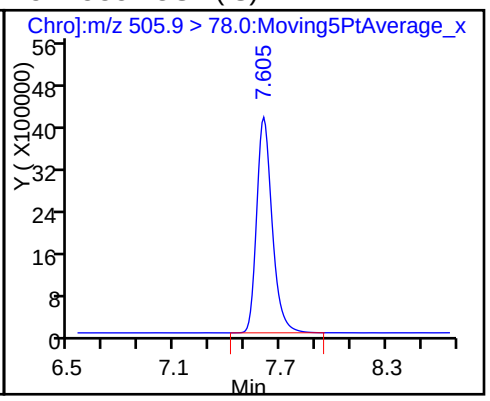
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB002-12.0 | Lab Sample ID: 280-85171-21

Matrix: Solid | Lab File ID: PC516G08022.d

Analysis Method: DV-LC-0012 | Date Collected: 06/30/2016 14:05

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.99(g) | Date Analyzed: 07/08/2016 15:53

Con. Extract Vol.: 20(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 7.1 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 333083 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.14	U	0.78	0.14
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.12	U	0.78	0.12
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.27	U	0.78	0.27
375-95-1	Perfluorononanoic acid (PFNA)	0.22	U	0.78	0.22
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.14	U	0.78	0.14
335-67-1	Perfluorooctanoic acid (PFOA)	0.23	U	0.78	0.23

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	111		57-153
STL01054	13C8 PFOS	97		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08022.d
Lims ID: 280-85171-A-21-A Lab Sample ID: 280-85171-21
Client ID: SB002-12.0
Sample Type: Client
Inject. Date: 08-Jul-2016 15:53:31 ALS Bottle#: 0 Worklist Smp#: 17
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85171-A-21-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 11-Jul-2016 11:14:20 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK031

First Level Reviewer: fiedlerh Date: 11-Jul-2016 10:59:46

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.285	4.266	0.019		26046444	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.374				ND			
298.9 > 98.9		5.374							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.856	5.847	0.009		20295351	10.0			
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.282				ND			
363.0 > 168.9		6.282							
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.291	6.282	0.009		2568460	9.46			
10 Perfluorohexane Sulfonate									
398.9 > 80.0		6.282				ND			
398.9 > 98.9		6.282							
16 Perfluorooctanoic acid									
413.0 > 368.9		6.632				ND			
413.0 > 169.0		6.632							
$ 14 13C8 PFOA									
421.0 > 375.9	6.631	6.631	0.0	1.000	27340342	10.9			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.631	6.631	0.0		31158697	10.0			
$ 18 13C8 PFOS									
506.9 > 80.0	6.903	6.903	0.0	1.000	5346657	9.01			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.904	6.913	-0.009		9276321	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9		6.904				ND			
498.9 > 98.9		6.904							

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
20 Perfluorononanoic acid									
463.0 > 418.9		6.933				ND			
463.0 > 218.9		6.933							
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.924	6.933	-0.009		26205531	10.0			
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.168	7.177	-0.009		27243522	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.376	7.395	-0.019		17009840	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.555	7.583	-0.029		34806285	10.0			
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.586	7.605	-0.019		26630541	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

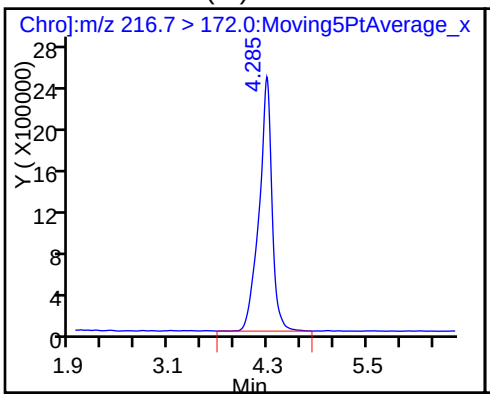
Report Date: 11-Jul-2016 11:14:28 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

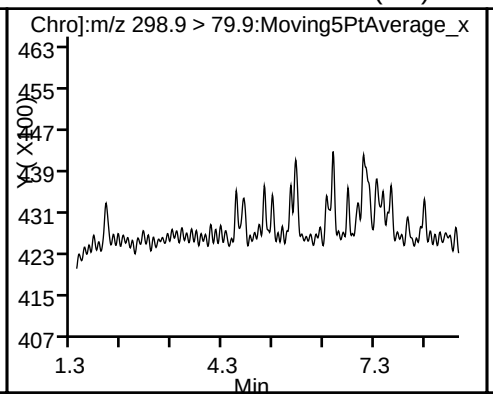
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08022.d

Injection Date:	08-Jul-2016 15:53:31	Instrument ID:	LC_LCMS5		
Lims ID:	280-85171-A-21-A	Lab Sample ID:	280-85171-21		
Client ID:	SB002-12.0				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	17
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

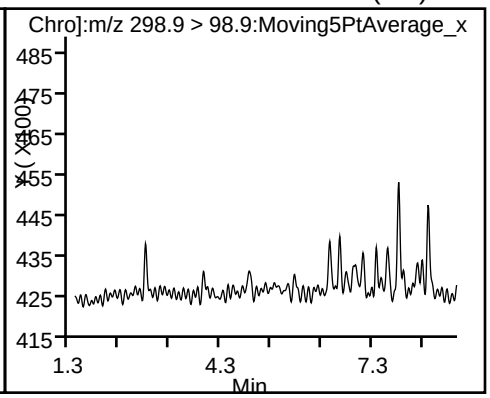
* 1 13C4 PFBA (IS)



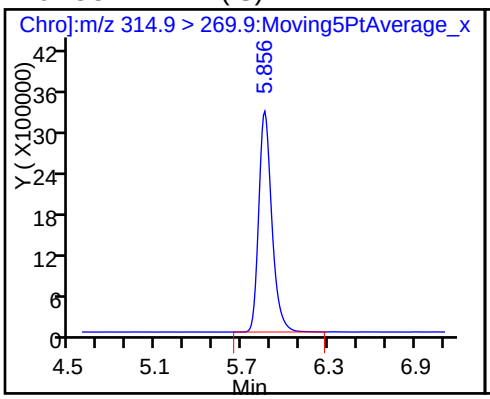
4 Perfluorobutane Sulfonate (ND)



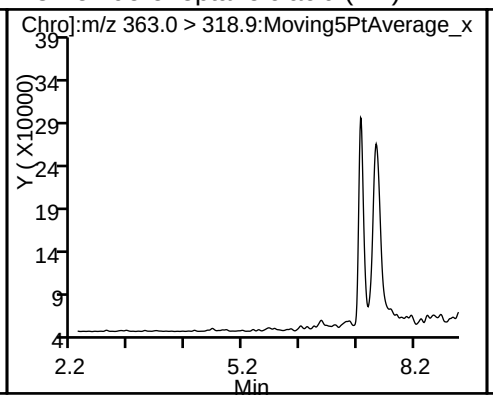
4 Perfluorobutane Sulfonate (ND)



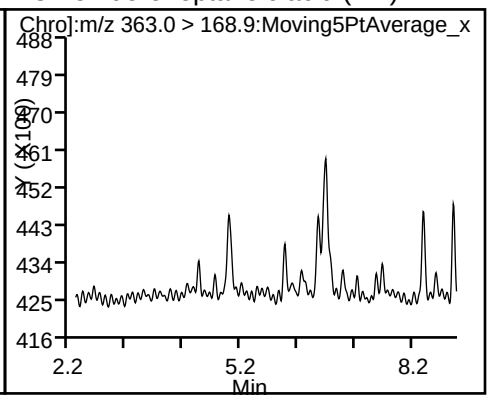
* 6 13C2 PFHxA (IS)



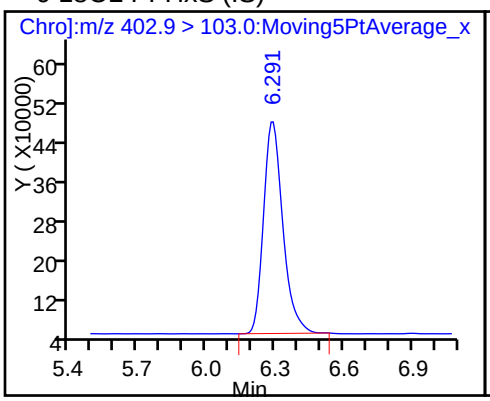
8 Perfluoroheptanoic acid (ND)



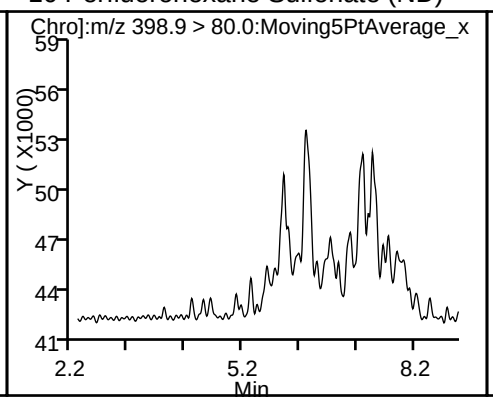
8 Perfluoroheptanoic acid (ND)



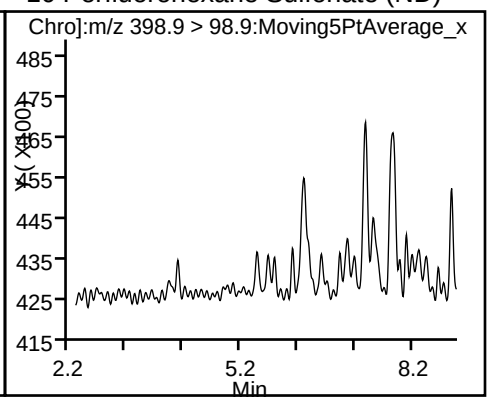
* 9 18O2 PFHxS (IS)



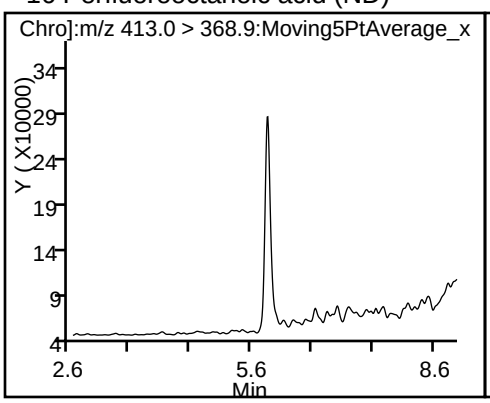
10 Perfluorohexane Sulfonate (ND)



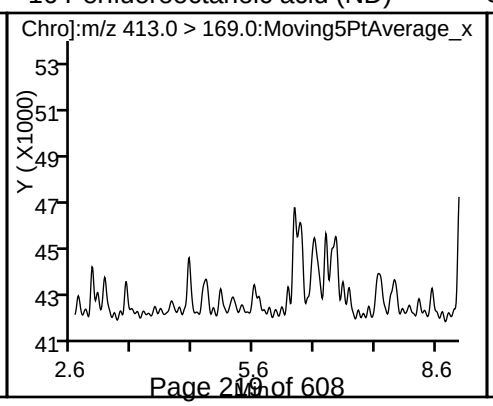
10 Perfluorohexane Sulfonate (ND)



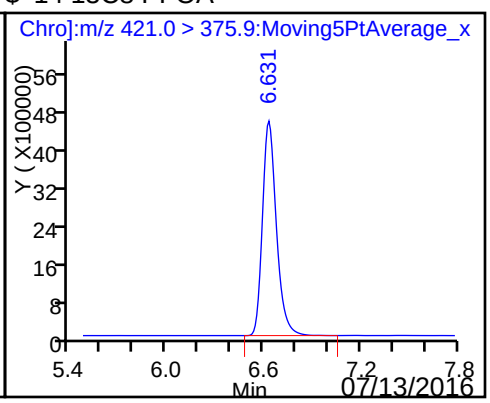
16 Perfluorooctanoic acid (ND)



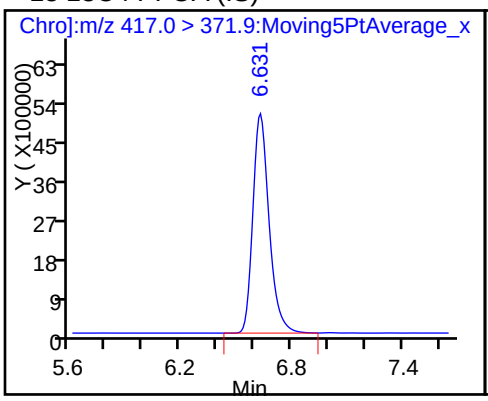
16 Perfluorooctanoic acid (ND)



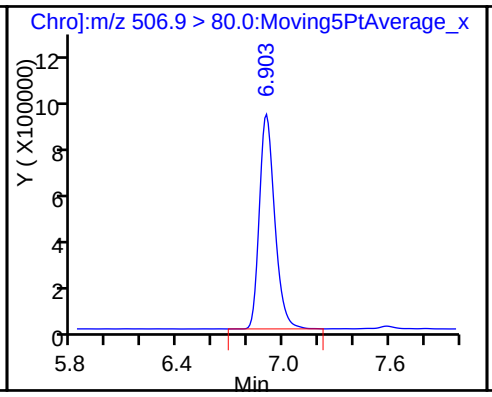
$ 14 13C8 PFOA



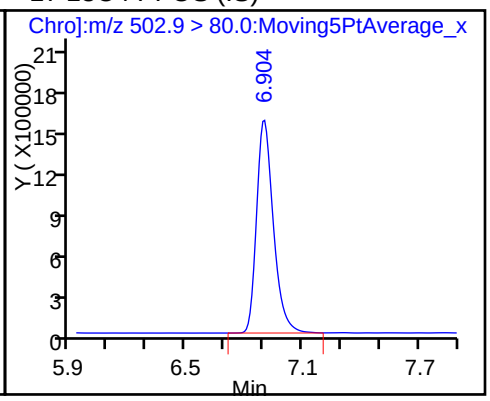
* 15 13C4 PFOA (IS)



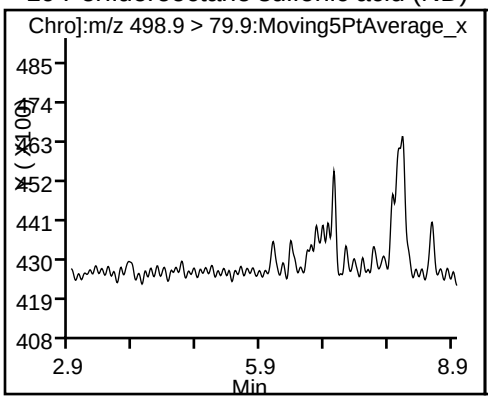
$ 18 13C8 PFOS



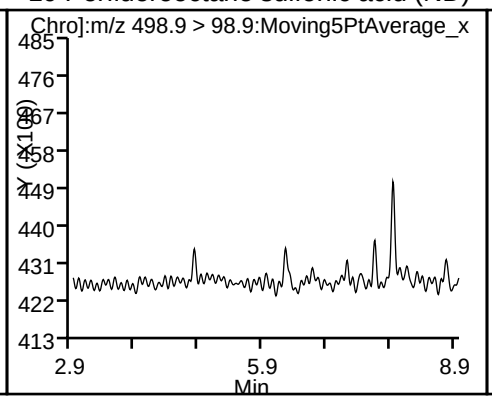
* 17 13C4 PFOS (IS)



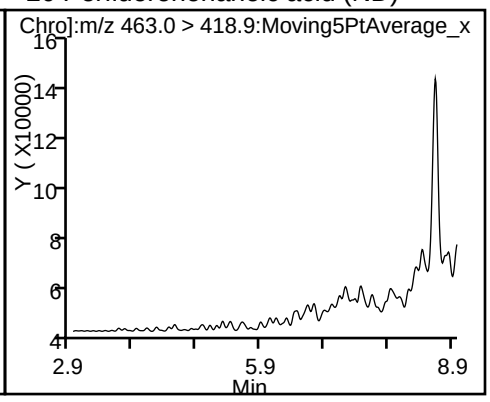
19 Perfluorooctane sulfonic acid (ND)



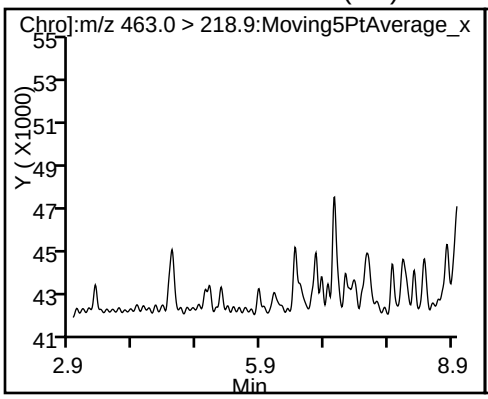
19 Perfluorooctane sulfonic acid (ND)



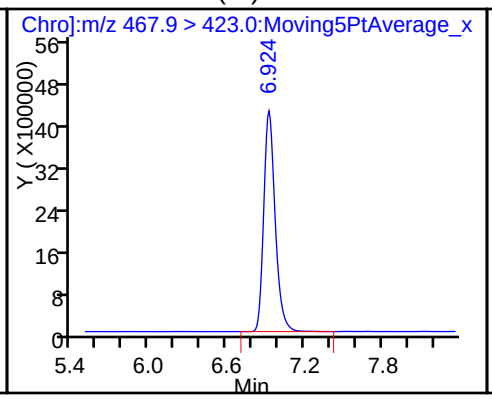
20 Perfluorononanoic acid (ND)



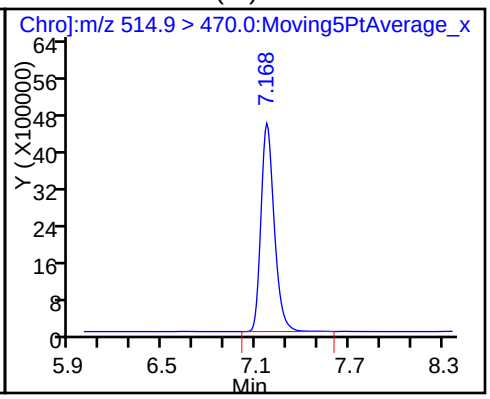
20 Perfluorononanoic acid (ND)



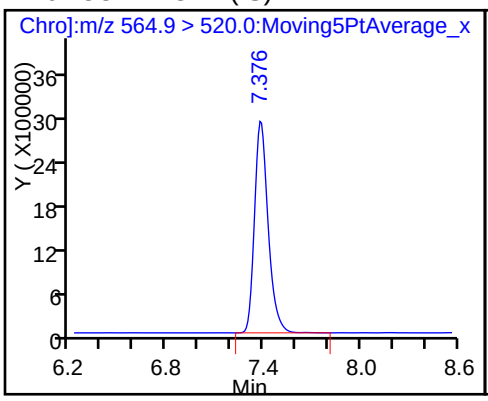
* 21 13C5 PFNA (IS)



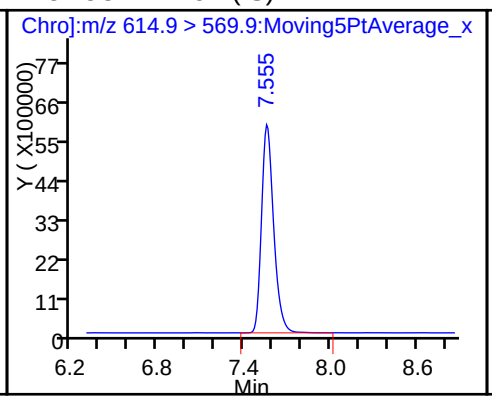
* 22 13C2 PFDA (IS)



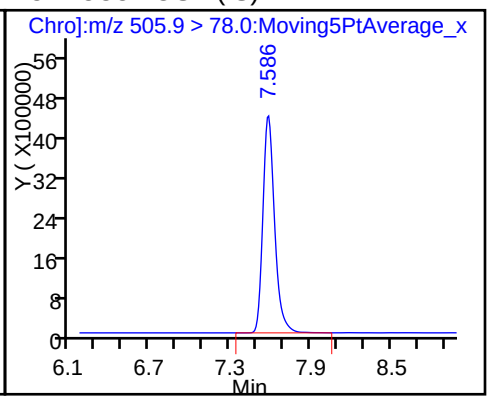
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB003-7.5 | Lab Sample ID: 280-85171-22

Matrix: Solid | Lab File ID: PC516G08023.d

Analysis Method: DV-LC-0012 | Date Collected: 06/30/2016 14:45

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.69(g) | Date Analyzed: 07/08/2016 16:05

Con. Extract Vol.: 20(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 7.6 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 333083 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.14	U	0.81	0.14
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.12	U	0.81	0.12
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.28	U	0.81	0.28
375-95-1	Perfluorononanoic acid (PFNA)	0.22	U	0.81	0.22
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.14	U	0.81	0.14
335-67-1	Perfluorooctanoic acid (PFOA)	0.23	U	0.81	0.23

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	105		57-153
STL01054	13C8 PFOS	101		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08023.d
Lims ID: 280-85171-A-22-A Lab Sample ID: 280-85171-22
Client ID: SB003-7.5
Sample Type: Client
Inject. Date: 08-Jul-2016 16:05:50 ALS Bottle#: 0 Worklist Smp#: 18
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85171-A-22-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 11-Jul-2016 11:14:20 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK031

First Level Reviewer: fiedlerh Date: 11-Jul-2016 10:59:59

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.181	4.266	-0.085		24253205	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.374				ND			
298.9 > 98.9		5.374							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.837	5.847	-0.010		19478961	10.0			
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.282				ND			
363.0 > 168.9		6.282							
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.272	6.282	-0.010		2383645	9.46			
10 Perfluorohexane Sulfonate									
398.9 > 80.0		6.282				ND			
398.9 > 98.9		6.282							
16 Perfluorooctanoic acid									
413.0 > 368.9		6.632				ND			
413.0 > 169.0		6.632							
$ 14 13C8 PFOA									
421.0 > 375.9	6.622	6.631	-0.009	1.000	24691513	10.3			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.622	6.631	-0.009		29724459	10.0			
$ 18 13C8 PFOS									
506.9 > 80.0	6.894	6.903	-0.009	1.000	5234077	9.34			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.894	6.913	-0.019		8765779	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9		6.904				ND			
498.9 > 98.9		6.904							

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
20 Perfluorononanoic acid									
463.0 > 418.9		6.933				ND			
463.0 > 218.9		6.933							
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.914	6.933	-0.019		23677588	10.0			
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.168	7.177	-0.009		25110593	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.376	7.395	-0.019		16020810	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.564	7.583	-0.019		32756894	10.0			
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.586	7.605	-0.019		25527800	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

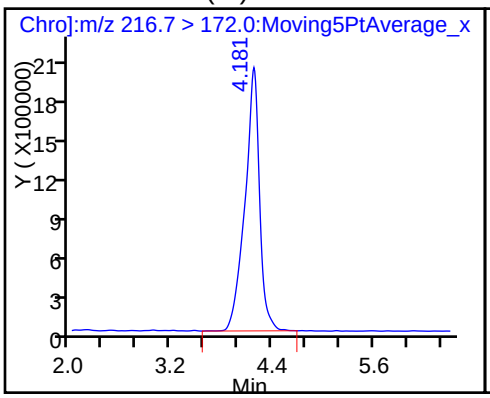
Report Date: 11-Jul-2016 11:14:25 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

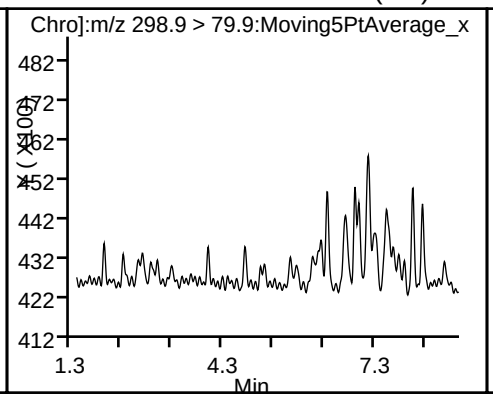
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08023.d

Injection Date:	08-Jul-2016 16:05:50	Instrument ID:	LC_LCMS5		
Lims ID:	280-85171-A-22-A	Lab Sample ID:	280-85171-22		
Client ID:	SB003-7.5				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	18
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

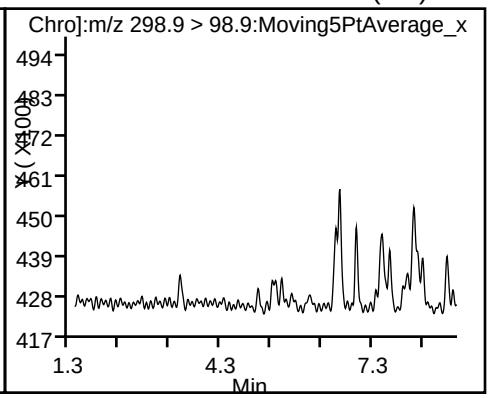
* 1 13C4 PFBA (IS)



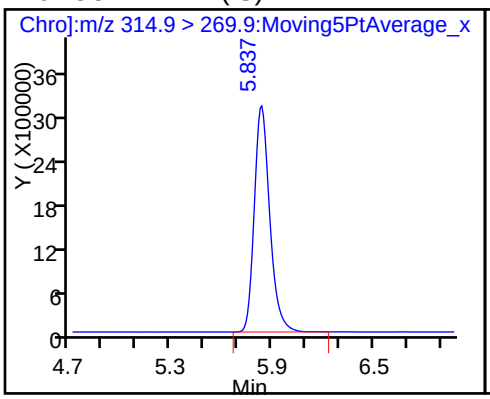
4 Perfluorobutane Sulfonate (ND)



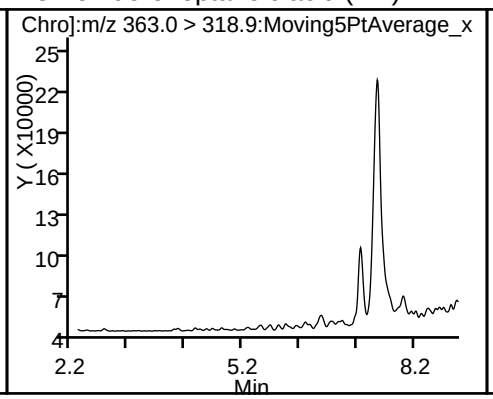
4 Perfluorobutane Sulfonate (ND)



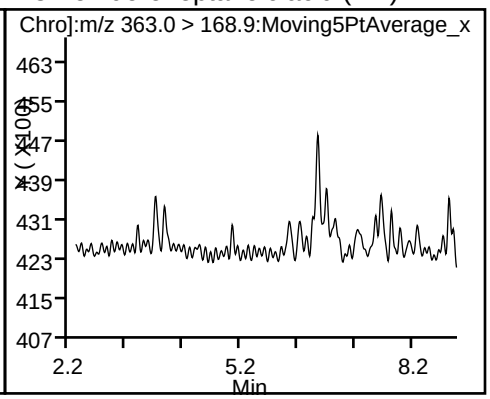
* 6 13C2 PFHxA (IS)



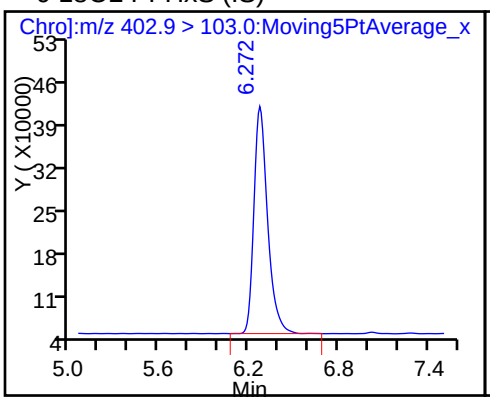
8 Perfluoroheptanoic acid (ND)



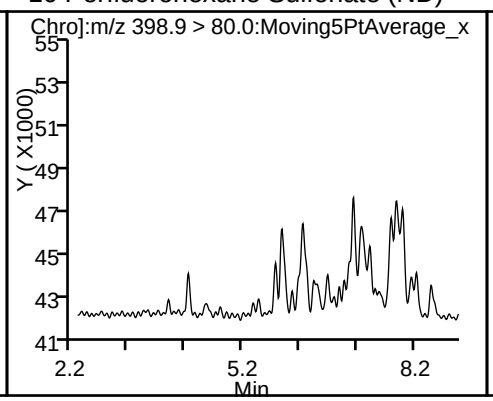
8 Perfluoroheptanoic acid (ND)



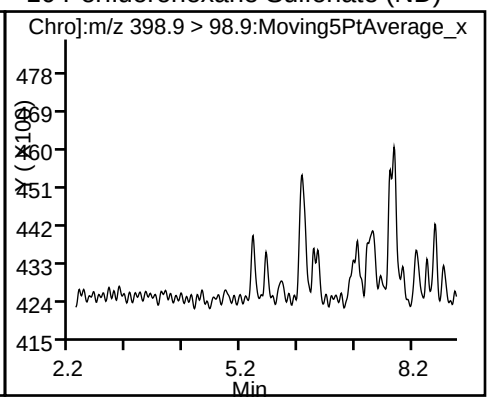
* 9 18O2 PFHxS (IS)



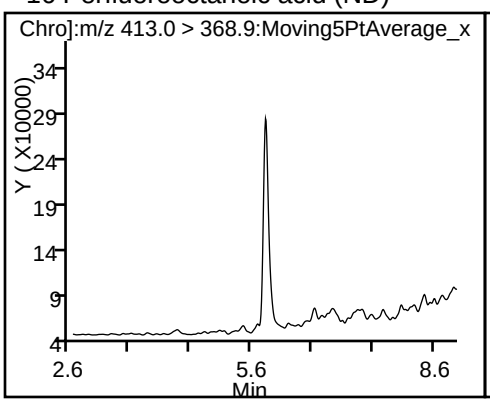
10 Perfluorohexane Sulfonate (ND)



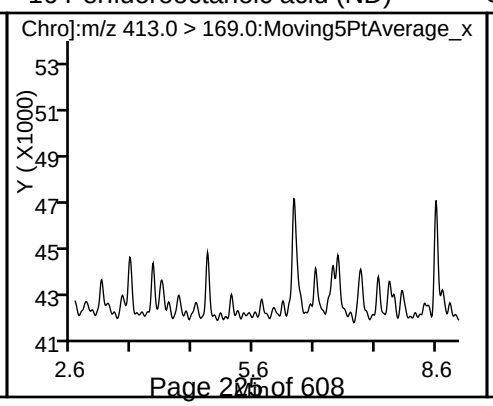
10 Perfluorohexane Sulfonate (ND)



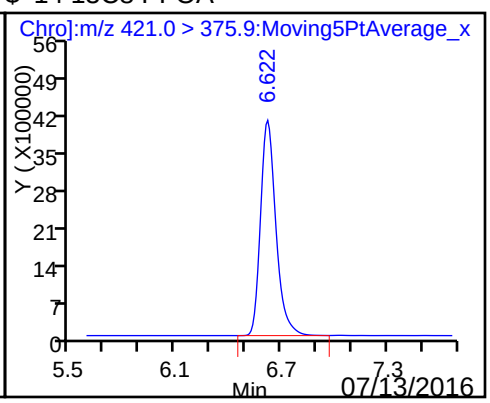
16 Perfluorooctanoic acid (ND)



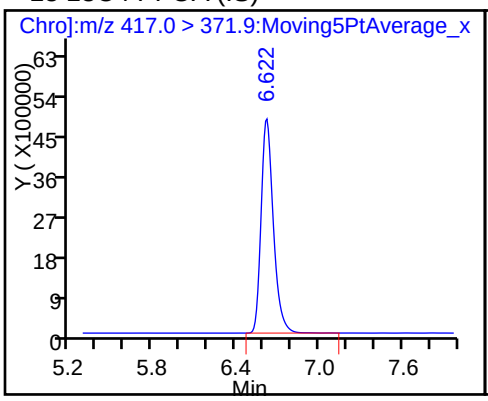
16 Perfluorooctanoic acid (ND)



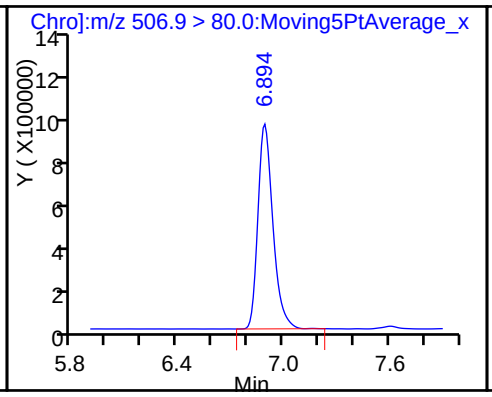
$ 14 13C8 PFOA



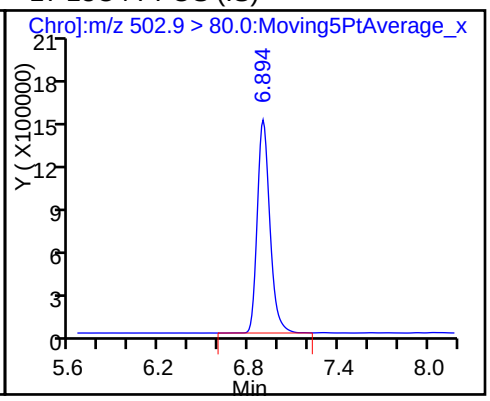
* 15 13C4 PFOA (IS)



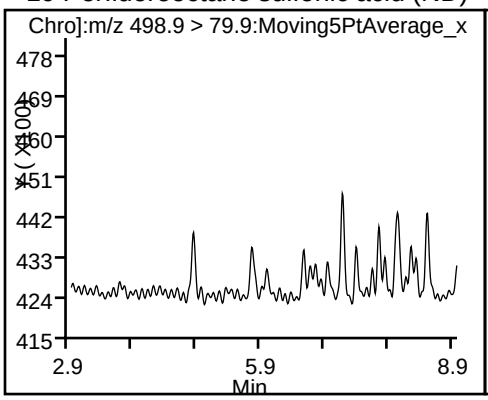
$ 18 13C8 PFOS



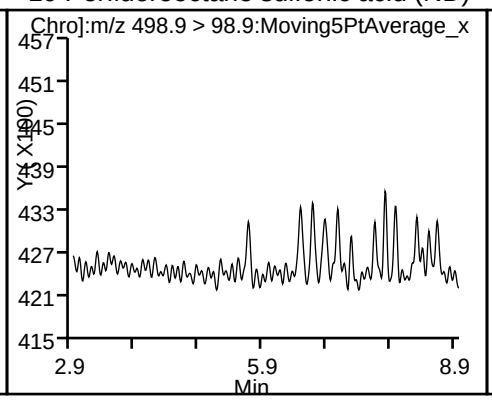
* 17 13C4 PFOS (IS)



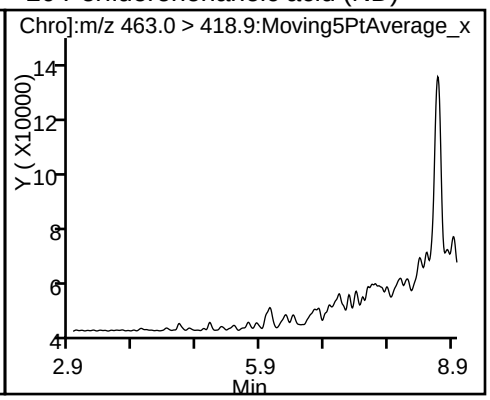
19 Perfluorooctane sulfonic acid (ND)



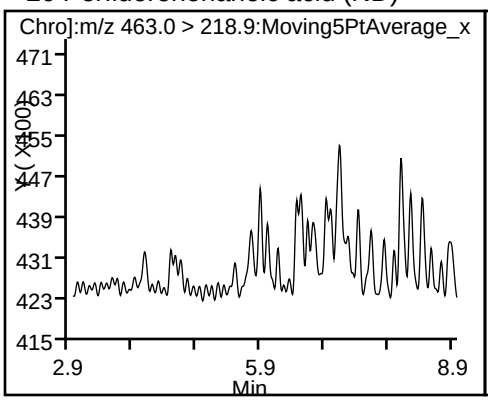
19 Perfluorooctane sulfonic acid (ND)



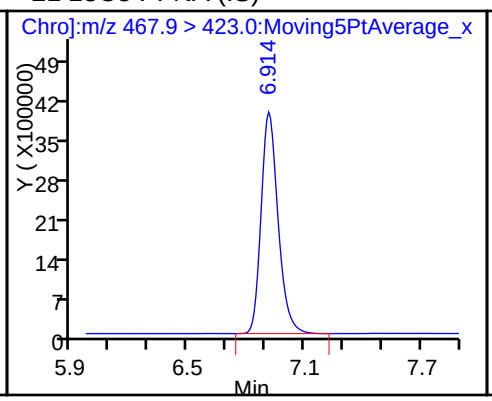
20 Perfluorononanoic acid (ND)



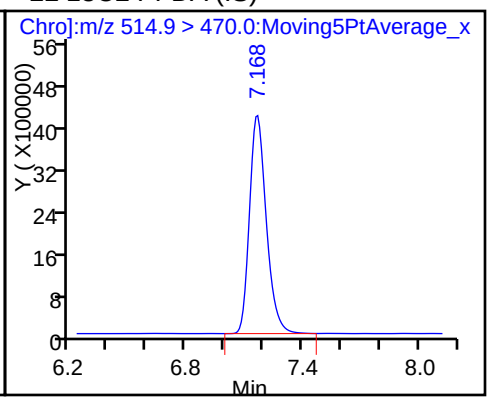
20 Perfluorononanoic acid (ND)



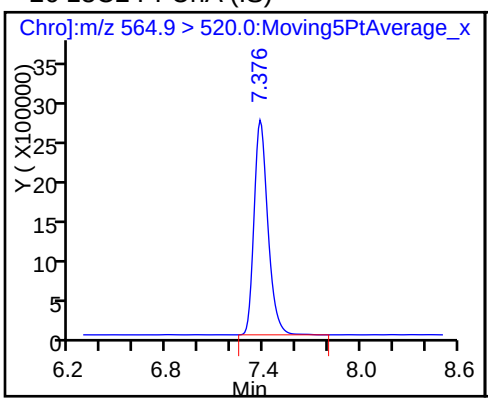
* 21 13C5 PFNA (IS)



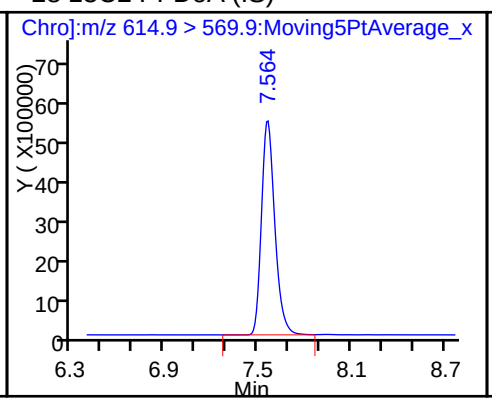
* 22 13C2 PFDA (IS)



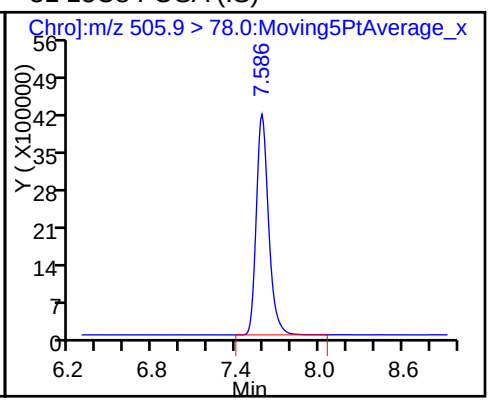
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB003-12.0 | Lab Sample ID: 280-85171-23

Matrix: Solid | Lab File ID: PC516G08024.d

Analysis Method: DV-LC-0012 | Date Collected: 06/30/2016 14:50

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.13(g) | Date Analyzed: 07/08/2016 16:18

Con. Extract Vol.: 20(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 7.9 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 333083 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.15	U	0.86	0.15
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.13	U	0.86	0.13
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.30	U	0.86	0.30
375-95-1	Perfluorononanoic acid (PFNA)	0.24	U	0.86	0.24
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.15	U	0.86	0.15
335-67-1	Perfluorooctanoic acid (PFOA)	0.25	U	0.86	0.25

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	107		57-153
STL01054	13C8 PFOS	101		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08024.d
Lims ID: 280-85171-A-23-A Lab Sample ID: 280-85171-23
Client ID: SB003-12.0
Sample Type: Client
Inject. Date: 08-Jul-2016 16:18:09 ALS Bottle#: 0 Worklist Smp#: 19
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85171-A-23-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 11-Jul-2016 11:14:20 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK031

First Level Reviewer: fiedlerh Date: 11-Jul-2016 11:00:27

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.295	4.266	0.029		24737400	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9		4.266				ND			
3 Perfluoropentanoic acid									
263.0 > 218.9		5.261				ND			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.374				ND			
298.9 > 98.9		5.374							
5 Perfluorobutanesulfonic acid									
298.9 > 79.9		5.374				ND			
298.9 > 98.9		5.374							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.885	5.847	0.038		19504812	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9		5.847				ND			
313.0 > 118.6		5.847							
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.282				ND			
363.0 > 168.9		6.282							
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.319	6.282	0.037		2259021	9.46			
10 Perfluorohexane Sulfonate									
398.9 > 80.0		6.282				ND			
398.9 > 98.9		6.282							
11 Perfluorohexanesulfonic acid									
398.9 > 80.0		6.282				ND			
398.9 > 98.9		6.282							

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9		6.621				ND			
449.0 > 98.9		6.621							
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9		6.621				ND			
449.0 > 98.9		6.621							
16 Perfluorooctanoic acid									
413.0 > 368.9		6.632				ND			
413.0 > 169.0		6.632							
$ 14 13C8 PFOA									
421.0 > 375.9	6.669	6.631	0.038	1.000	25525030	10.4			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.669	6.631	0.038		30251301	10.0			
$ 18 13C8 PFOS									
506.9 > 80.0	6.951	6.903	0.048	1.001	5316763	9.41			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.942	6.913	0.029		8833155	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9		6.904				ND			
498.9 > 98.9		6.904							
20 Perfluorononanoic acid									
463.0 > 418.9		6.933				ND			
463.0 > 218.9		6.933							
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.971	6.933	0.038		24442287	10.0			
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.225	7.177	0.048		25295408	10.0			
23 Perfluorodecanoic acid									
513.0 > 468.9		7.187				ND			
513.0 > 219.0		7.187							
25 Perfluorodecane Sulfonate									
598.9 > 79.9		7.375				ND			
598.9 > 99.0		7.375							
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9		7.375				ND			
598.9 > 99.0		7.375							
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.442	7.395	0.047		15637122	10.0			
27 Perfluoroundecanoic acid									
563.0 > 518.9		7.395				ND			
563.0 > 268.9		7.395							
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.621	7.583	0.038		32602169	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9		7.583				ND			
613.0 > 168.9		7.583							
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.652	7.605	0.047		25486883	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0		7.605				ND			
30 Perfluorotridecanoic acid									
663.0 > 618.9		7.744				ND			
33 Perfluorotetradecanoic acid									
712.9 > 668.8		7.876				ND			
712.9 > 169.0		7.876							

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

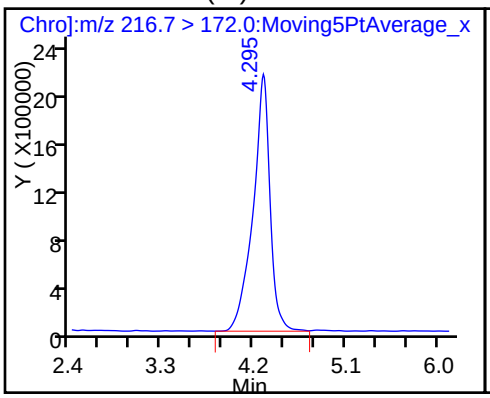
Report Date: 11-Jul-2016 11:14:23 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

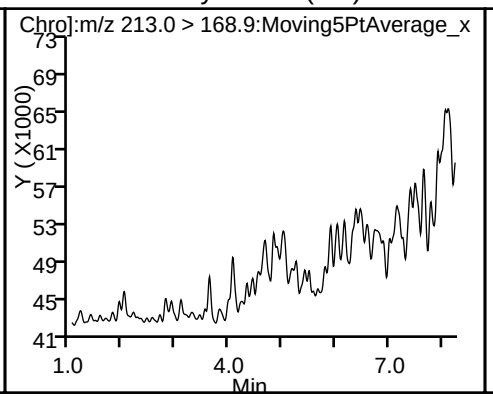
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08024.d

Injection Date:	08-Jul-2016 16:18:09	Instrument ID:	LC_LCMS5		
Lims ID:	280-85171-A-23-A	Lab Sample ID:	280-85171-23		
Client ID:	SB003-12.0				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	19
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

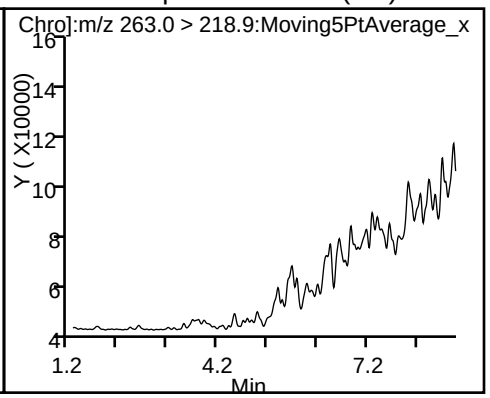
* 1 13C4 PFBA (IS)



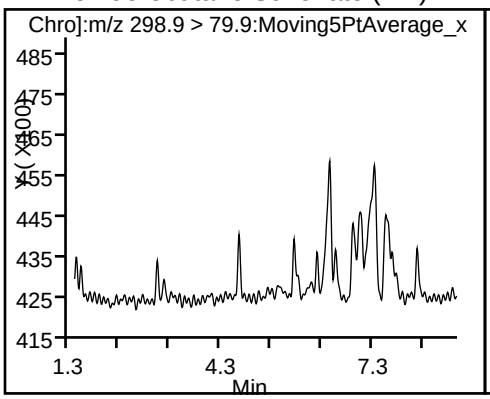
2 Perfluorobutyric acid (ND)



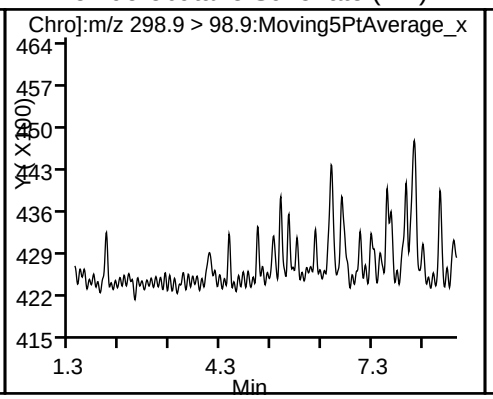
3 Perfluoropentanoic acid (ND)



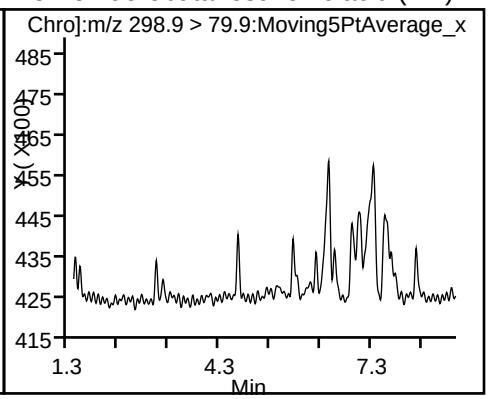
4 Perfluorobutane Sulfonate (ND)



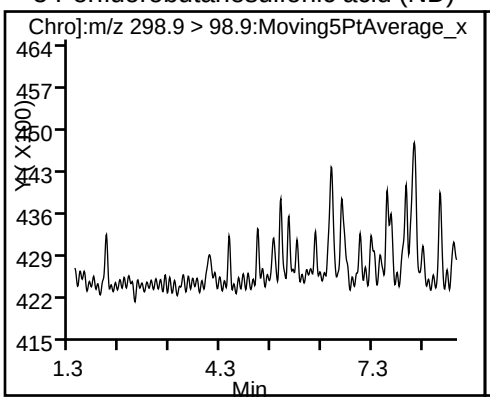
4 Perfluorobutane Sulfonate (ND)



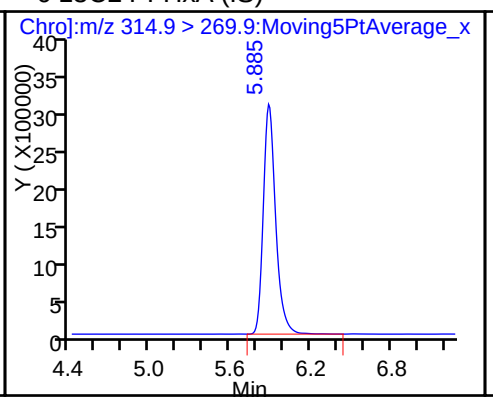
5 Perfluorobutanesulfonic acid (ND)



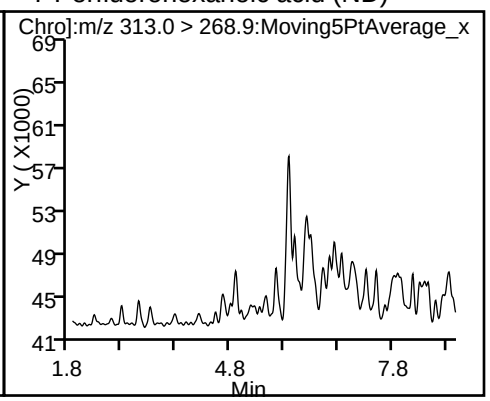
5 Perfluorobutanesulfonic acid (ND)



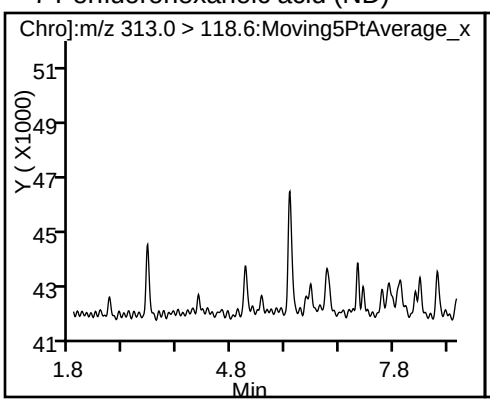
* 6 13C2 PFHxA (IS)



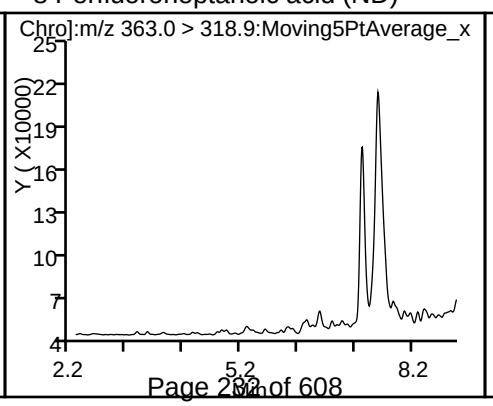
7 Perfluorohexanoic acid (ND)



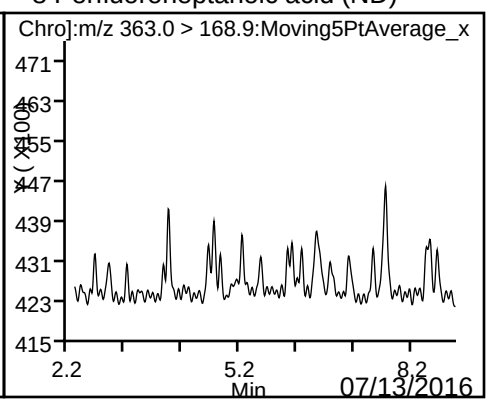
7 Perfluorohexanoic acid (ND)



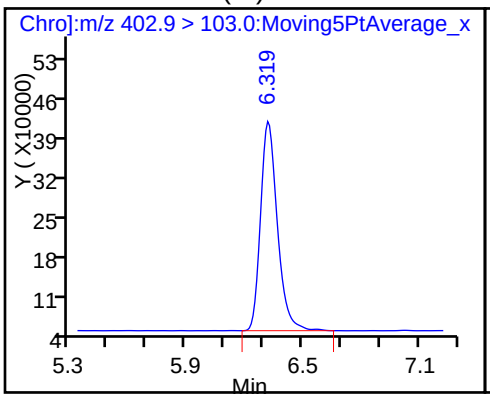
8 Perfluoroheptanoic acid (ND)



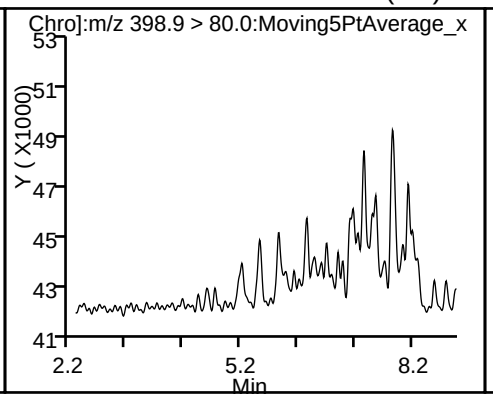
8 Perfluoroheptanoic acid (ND)



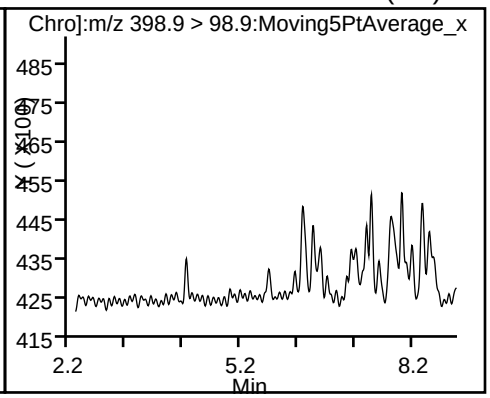
* 9 18O2 PFHxS (IS)



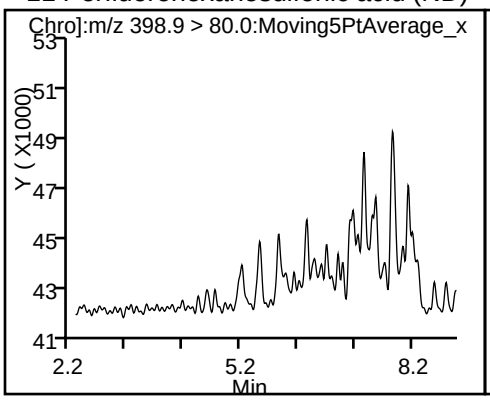
10 Perfluorohexane Sulfonate (ND)



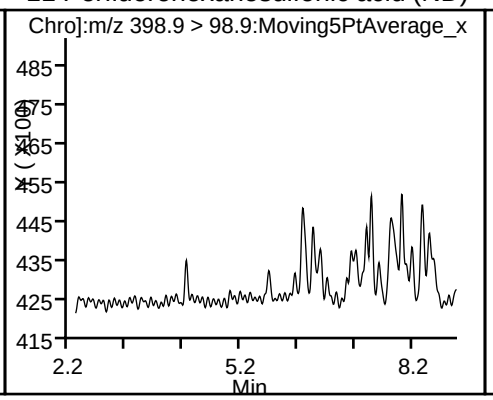
10 Perfluorohexane Sulfonate (ND)



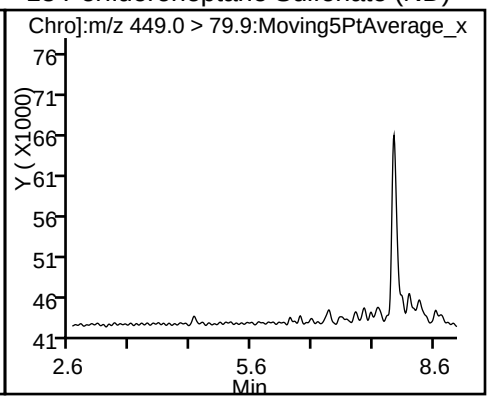
11 Perfluorohexanesulfonic acid (ND)



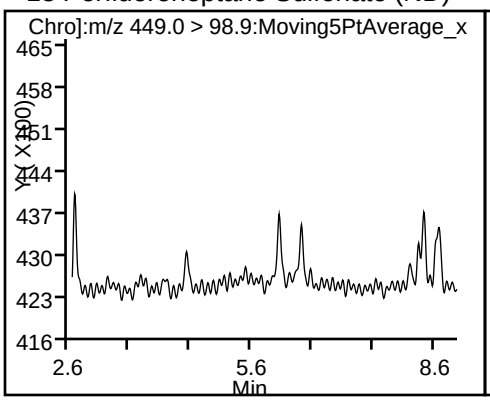
11 Perfluorohexanesulfonic acid (ND)



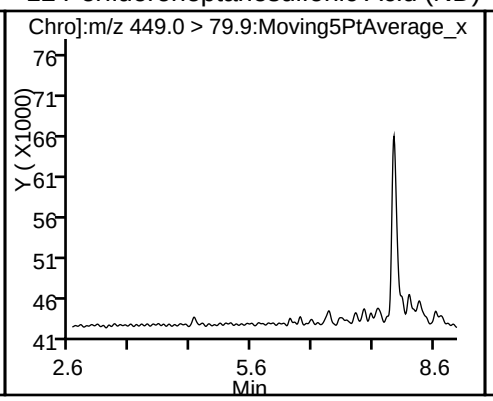
13 Perfluoroheptane Sulfonate (ND)



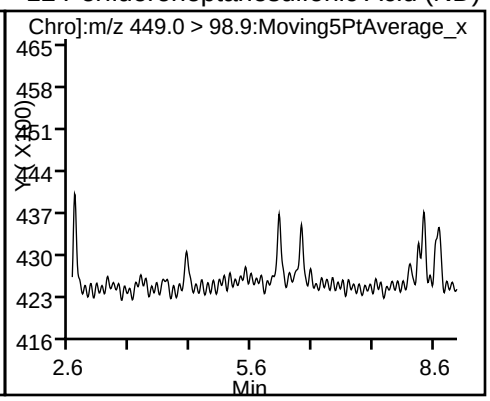
13 Perfluoroheptane Sulfonate (ND)



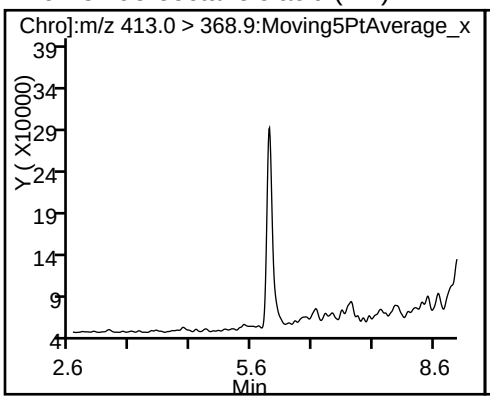
12 Perfluoroheptanesulfonic Acid (ND)



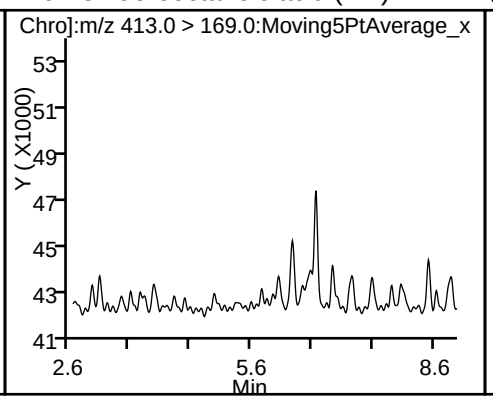
12 Perfluoroheptanesulfonic Acid (ND)



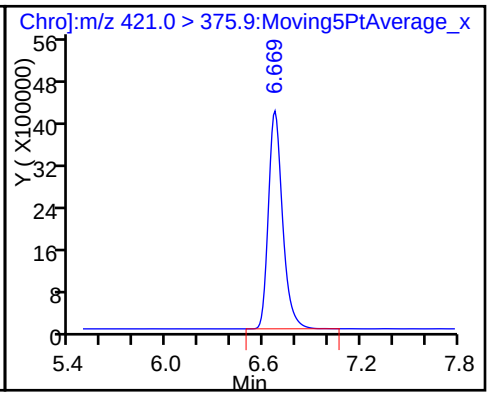
16 Perfluorooctanoic acid (ND)



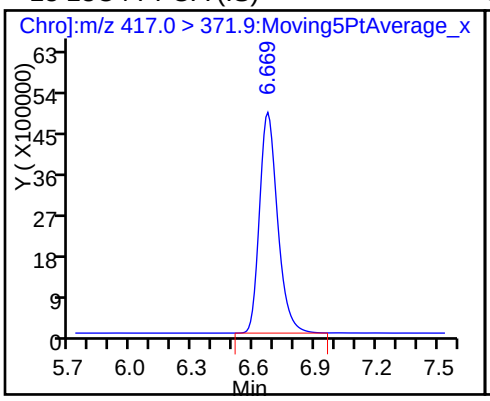
16 Perfluorooctanoic acid (ND)



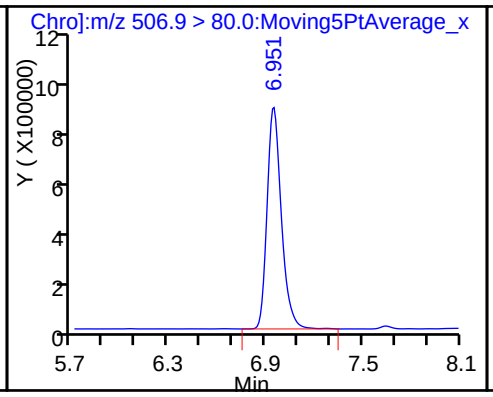
$ 14 13C8 PFOA



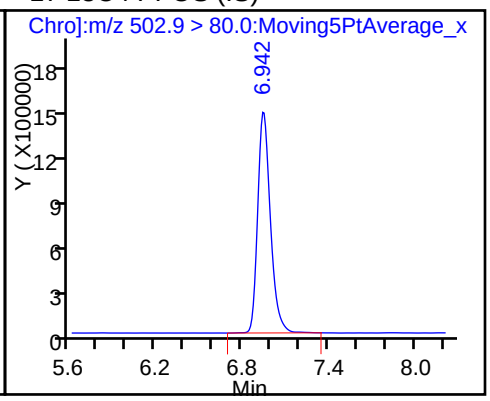
* 15 13C4 PFOA (IS)



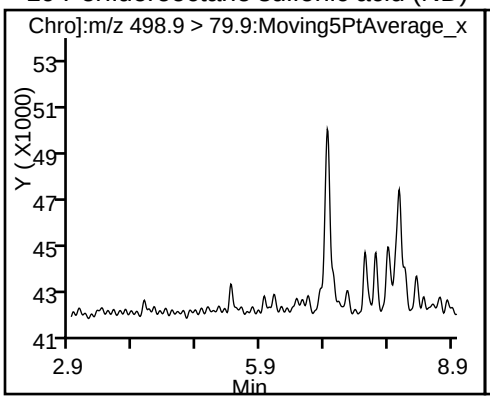
$ 18 13C8 PFOS



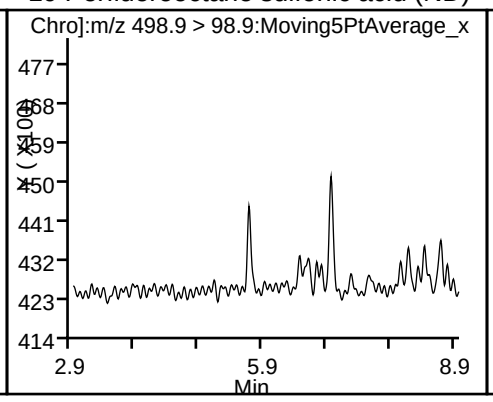
* 17 13C4 PFOS (IS)



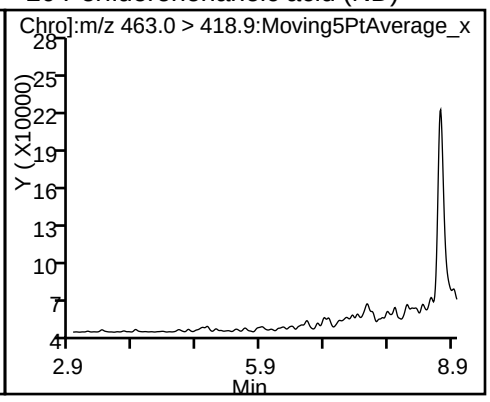
19 Perfluorooctane sulfonic acid (ND)



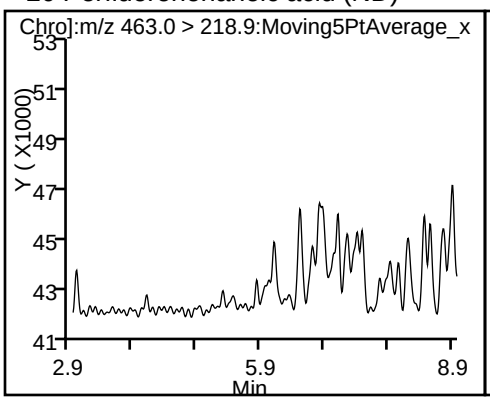
19 Perfluorooctane sulfonic acid (ND)



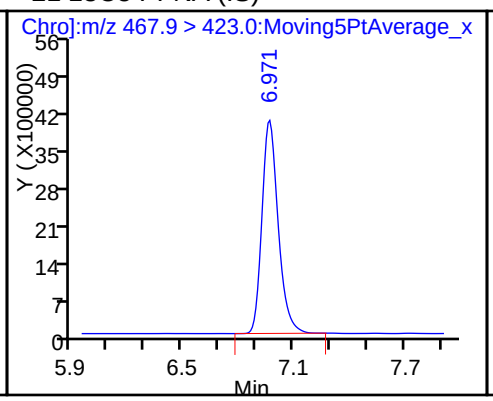
20 Perfluorononanoic acid (ND)



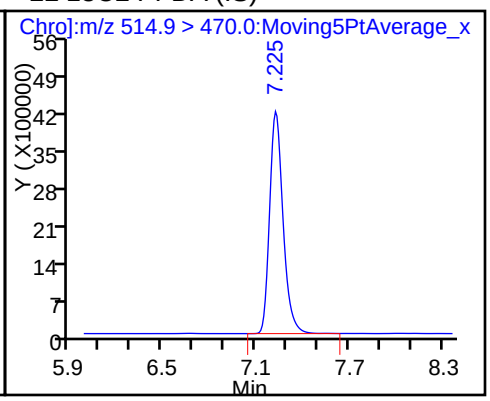
20 Perfluorononanoic acid (ND)



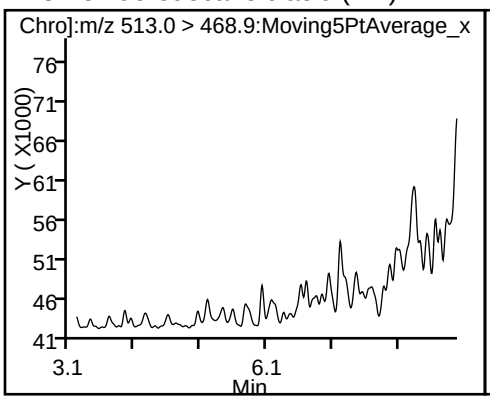
* 21 13C5 PFNA (IS)



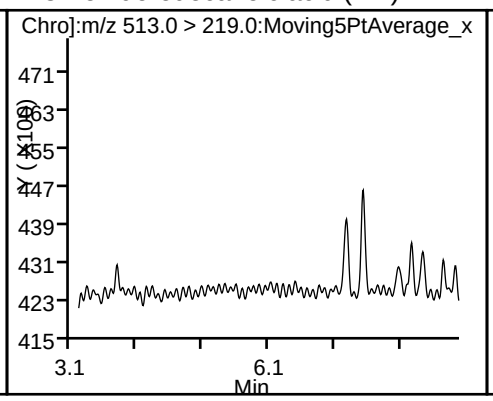
* 22 13C2 PFDA (IS)



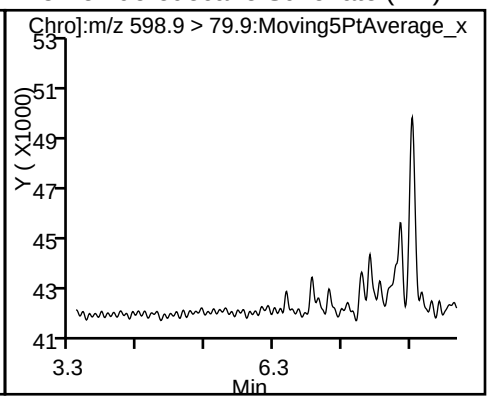
23 Perfluorodecanoic acid (ND)



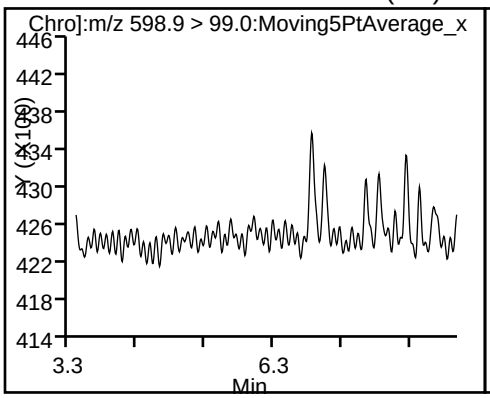
23 Perfluorodecanoic acid (ND)



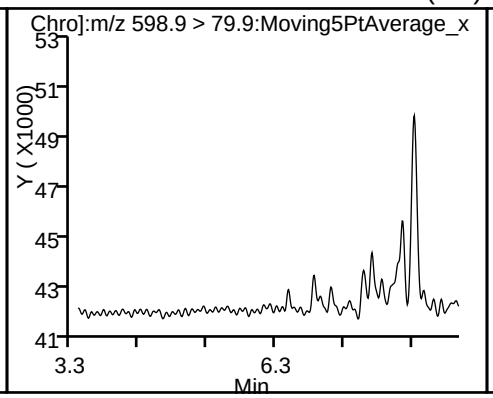
25 Perfluorodecane Sulfonate (ND)



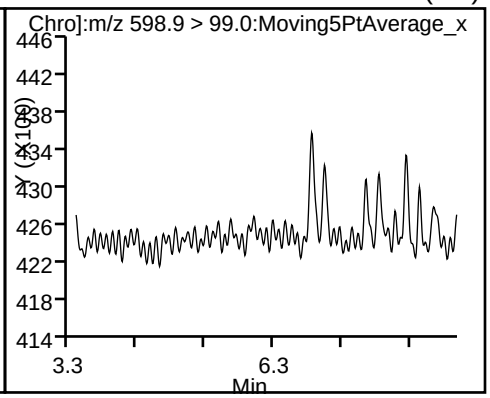
25 Perfluorodecane Sulfonate (ND)



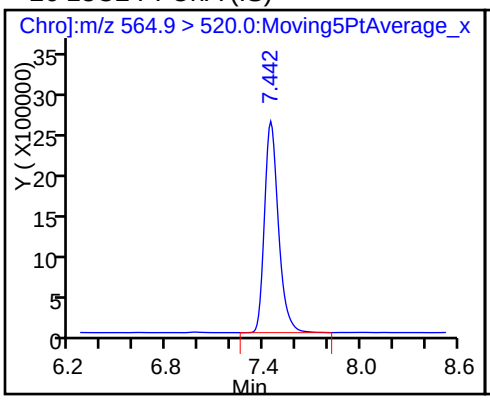
24 Perfluorodecane Sulfonic acid (ND)



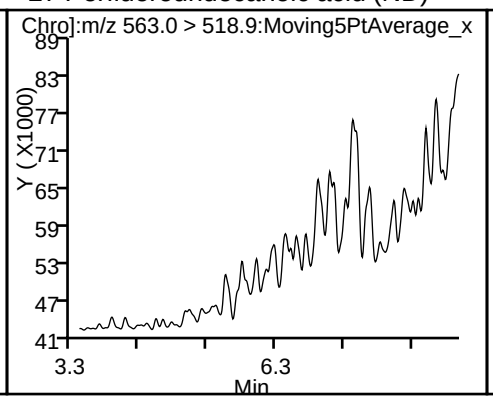
24 Perfluorodecane Sulfonic acid (ND)



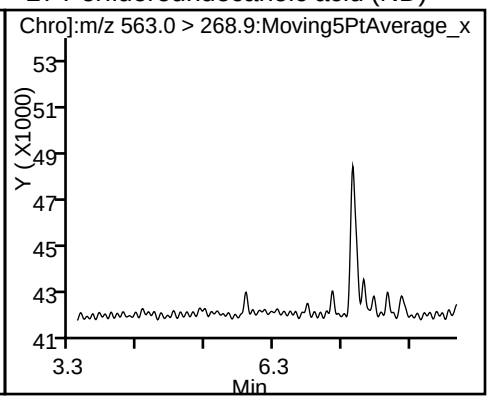
* 26 13C2 PFUnA (IS)



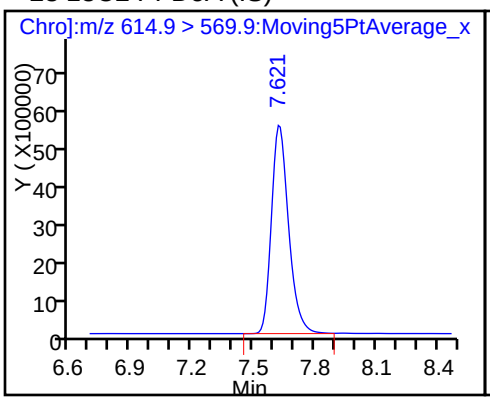
27 Perfluoroundecanoic acid (ND)



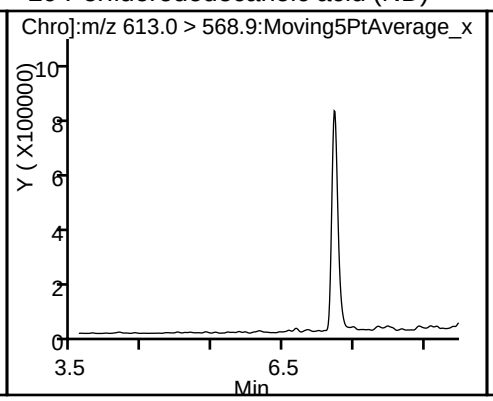
27 Perfluoroundecanoic acid (ND)



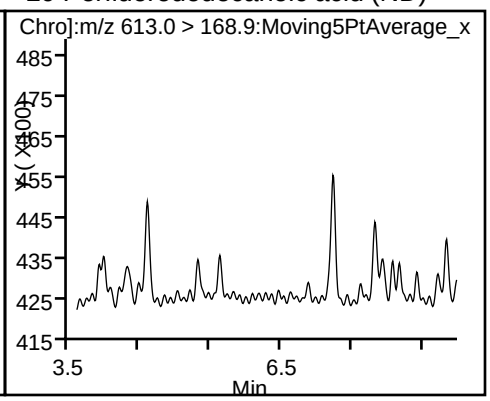
* 28 13C2 PFDoA (IS)



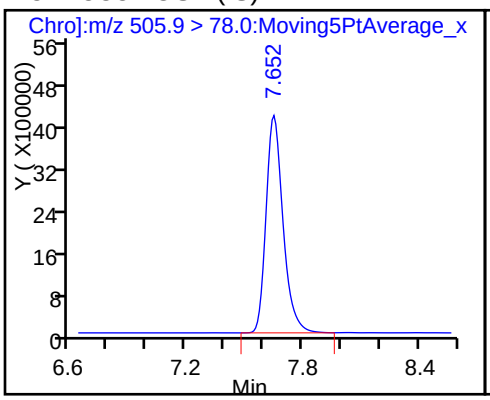
29 Perfluorododecanoic acid (ND)



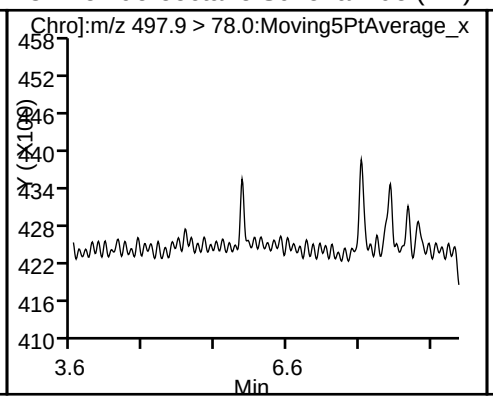
29 Perfluorododecanoic acid (ND)



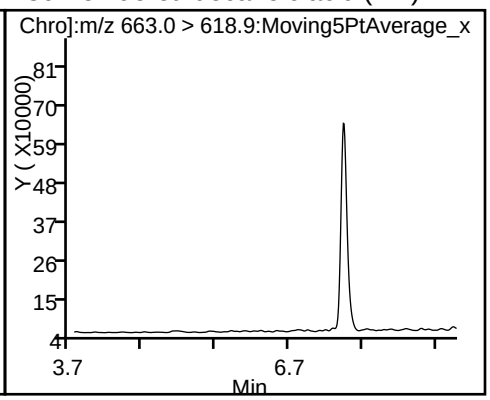
* 31 13C8 FOSA (IS)



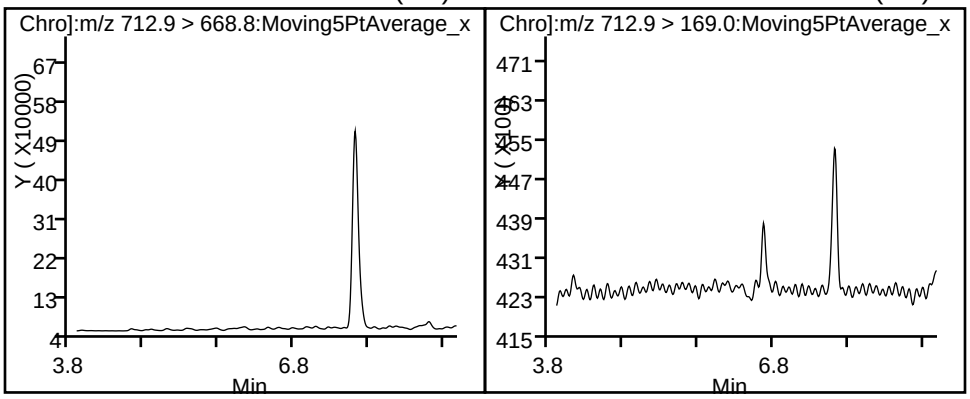
32 Perfluorooctane Sulfonamide (ND)



30 Perfluorotridecanoic acid (ND)



33 Perfluorotetradecanoic acid (ND) 33 Perfluorotetradecanoic acid (ND)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB004-0.5 | Lab Sample ID: 280-85171-24

Matrix: Solid | Lab File ID: PC516G08028.d

Analysis Method: DV-LC-0012 | Date Collected: 06/30/2016 15:20

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.64(g) | Date Analyzed: 07/08/2016 17:07

Con. Extract Vol.: 20(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 7.1 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 333083 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.14	U	0.81	0.14
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.12	U	0.81	0.12
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	1.36		0.81	0.28
375-95-1	Perfluorononanoic acid (PFNA)	0.22	U	0.81	0.22
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	5.94		0.81	0.14
335-67-1	Perfluorooctanoic acid (PFOA)	0.43	J	0.81	0.23

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	104		57-153
STL01054	13C8 PFOS	104		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08028.d
Lims ID: 280-85171-A-24-A Lab Sample ID: 280-85171-24
Client ID: SB004-0.5
Sample Type: Client
Inject. Date: 08-Jul-2016 17:07:20 ALS Bottle#: 0 Worklist Smp#: 23
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85171-A-24-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 12-Jul-2016 11:19:10 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK010

First Level Reviewer: fiedlerh Date: 11-Jul-2016 11:01:42

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.276	4.323	-0.047		29171760	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.412				ND			
298.9 > 98.9		5.412							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.847	5.856	-0.009		21607789	10.0			
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.291	6.282	0.009		2459759	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.291	6.282	0.009	1.000	754161	0.6702			R
398.9 > 98.9	6.282	6.282	0.0	0.999	270434		2.79(1.30-2.41)		
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.282				ND			
363.0 > 168.9		6.282							
$ 14 13C8 PFOA									
421.0 > 375.9	6.631	6.631	0.0	1.000	26169220	10.2			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.631	6.631	0.0		31872652	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.632	6.632	0.0	1.000	943435	0.2144			
413.0 > 169.0	6.622	6.632	-0.010	0.999	283162		3.33(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.903	6.913	-0.010	1.000	5258296	9.62			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.904	6.913	-0.009		8543416	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.904	6.914	-0.010	1.000	3127536	2.94			R
498.9 > 98.9	6.904	6.914	-0.010	1.000	1135236		2.75(1.31-2.43)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.924	6.933	-0.009		25318815	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9		6.933				ND			
463.0 > 218.9		6.933							
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.177	7.187	-0.010		27484160	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.395	7.414	-0.019		17390819	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.573	7.592	-0.019		34598040	10.0			
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.605	7.614	-0.009		22947664	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

R - Failed Signal Ratio Test

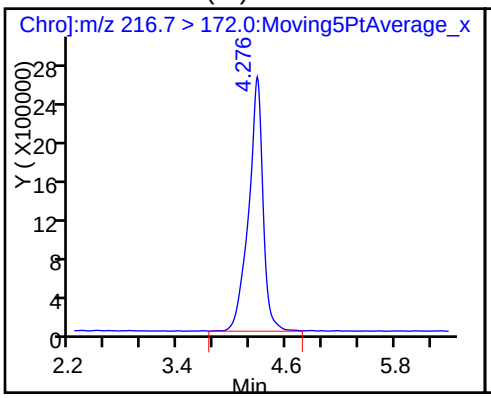
Report Date: 12-Jul-2016 11:19:11 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

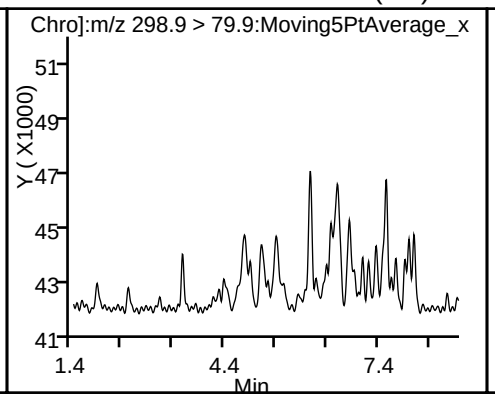
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08028.d

Injection Date:	08-Jul-2016 17:07:20	Instrument ID:	LC_LCMS5		
Lims ID:	280-85171-A-24-A	Lab Sample ID:	280-85171-24		
Client ID:	SB004-0.5				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	23
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

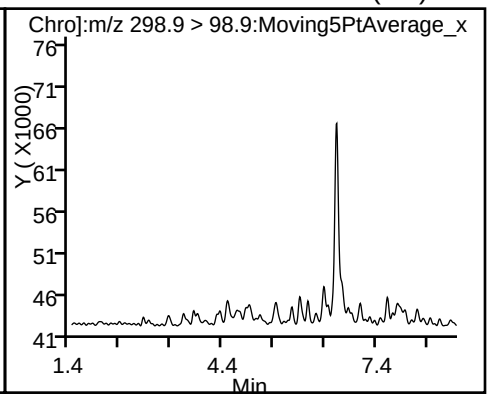
* 1 13C4 PFBA (IS)



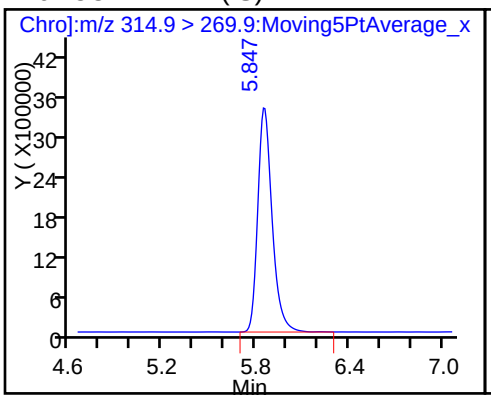
4 Perfluorobutane Sulfonate (ND)



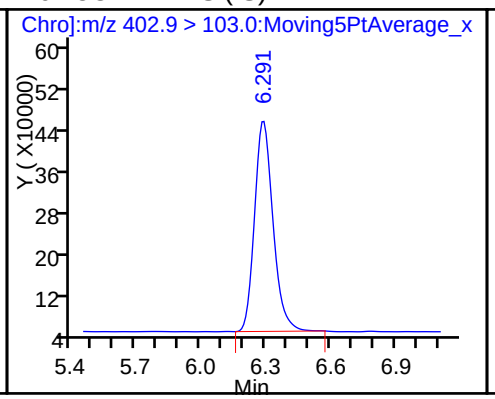
4 Perfluorobutane Sulfonate (ND)



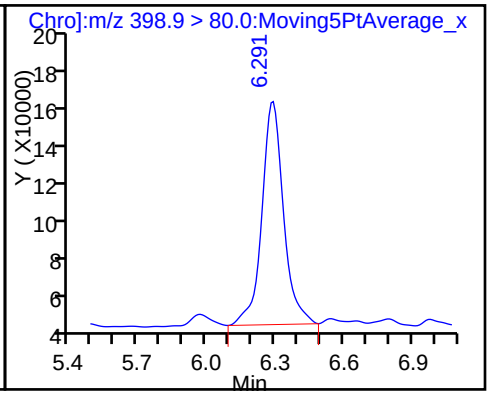
* 6 13C2 PFHxA (IS)



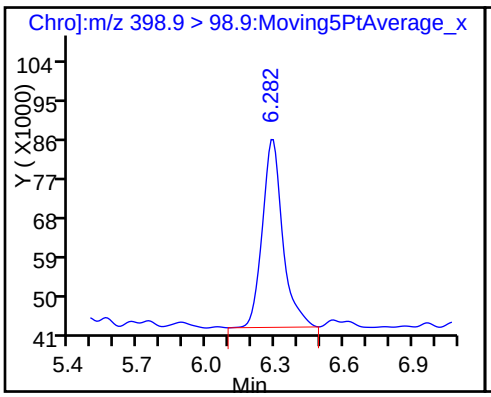
* 9 18O2 PFHxS (IS)



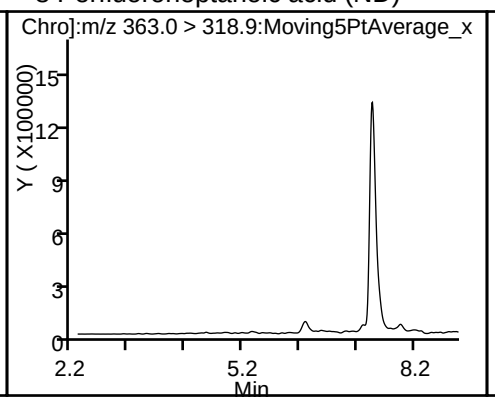
10 Perfluorohexane Sulfonate



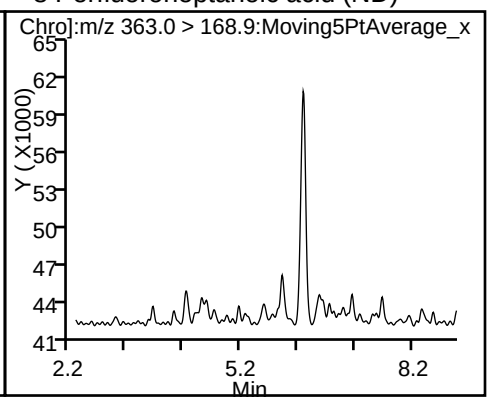
10 Perfluorohexane Sulfonate



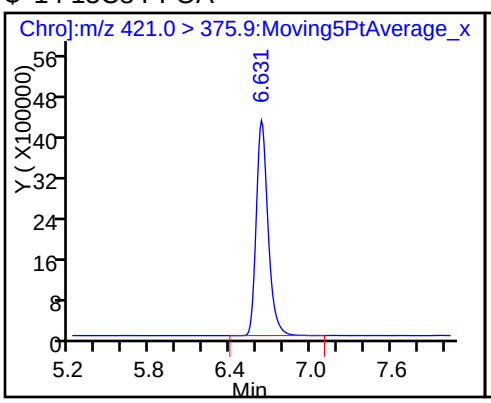
8 Perfluoroheptanoic acid (ND)



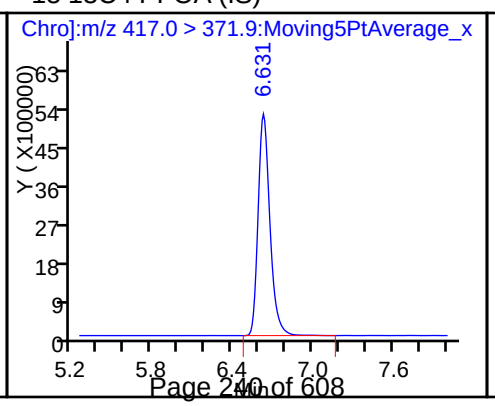
8 Perfluoroheptanoic acid (ND)



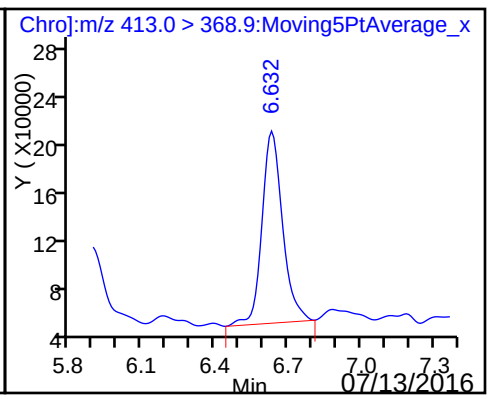
$ 14 13C8 PFOA



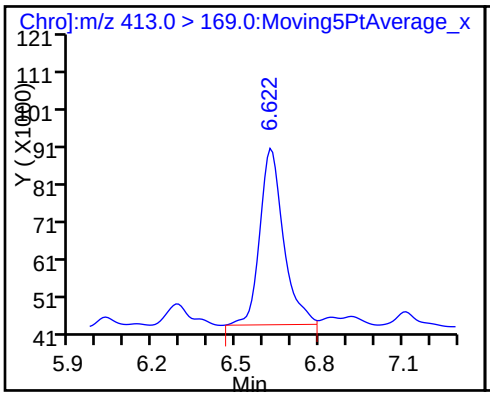
* 15 13C4 PFOA (IS)



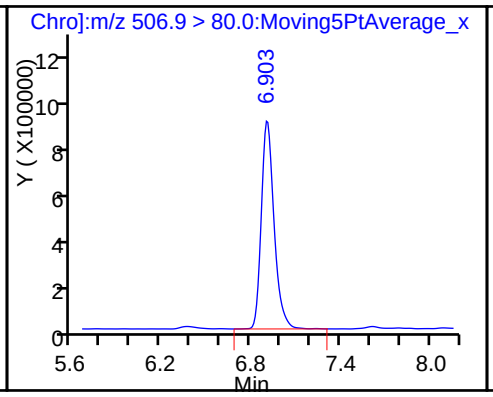
16 Perfluorooctanoic acid



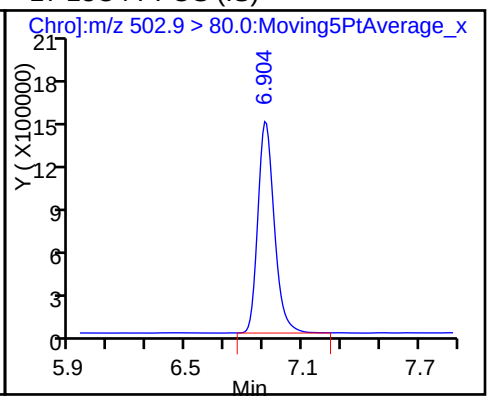
16 Perfluorooctanoic acid



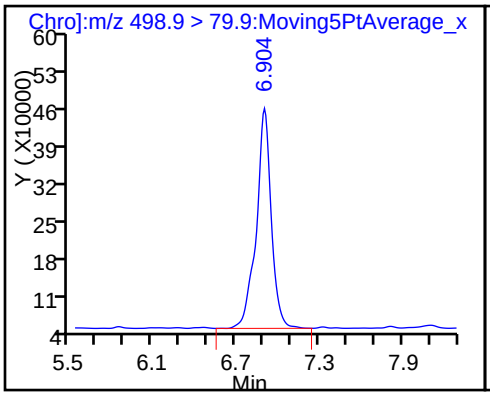
$ 18 13C8 PFOS



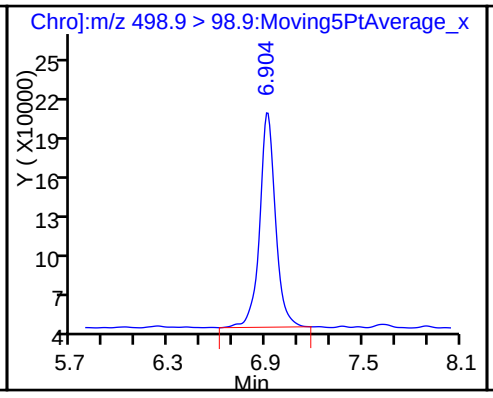
* 17 13C4 PFOS (IS)



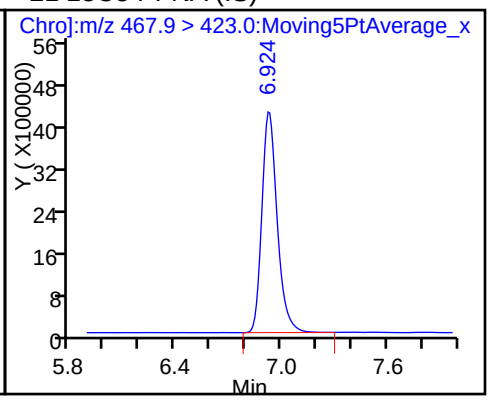
19 Perfluorooctane sulfonic acid



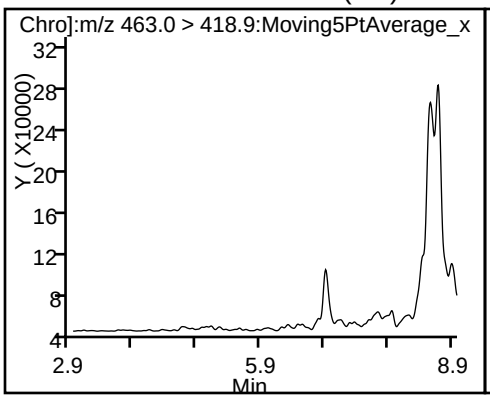
19 Perfluorooctane sulfonic acid



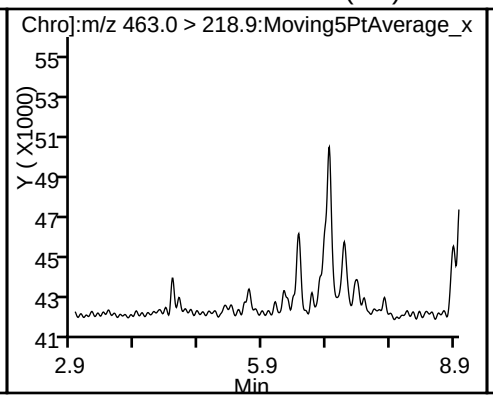
* 21 13C5 PFNA (IS)



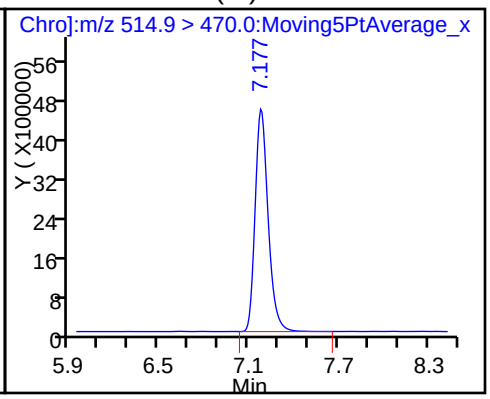
20 Perfluorononanoic acid (ND)



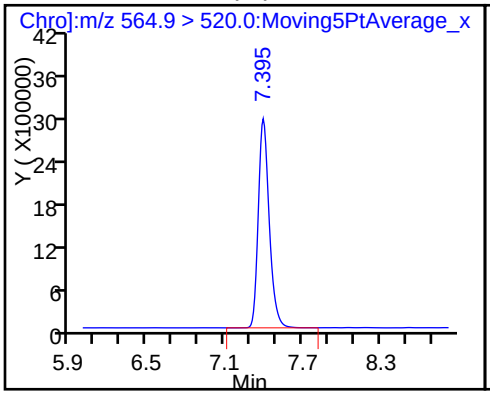
20 Perfluorononanoic acid (ND)



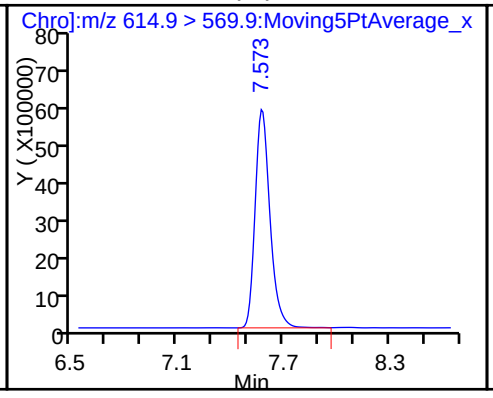
* 22 13C2 PFDA (IS)



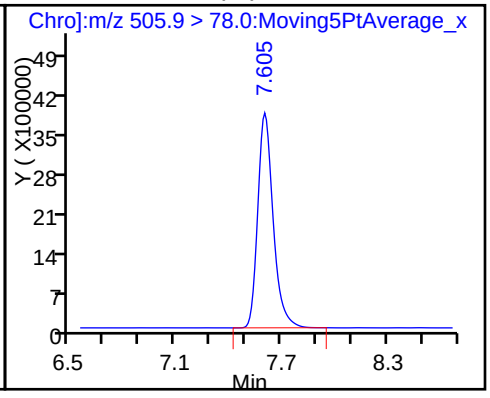
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: FB-5 | Lab Sample ID: 280-85171-25

Matrix: Water | Lab File ID: PC516G07070.d

Analysis Method: DV-LC-0012 | Date Collected: 06/30/2016 15:40

Extraction Method: 3535 | Date Extracted: 07/05/2016 12:12

Sample wt/vol: 266.5(mL) | Date Analyzed: 07/07/2016 20:24

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 332793 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.0077	U	0.019	0.0077
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.012	U	0.028	0.012
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.0065	U	0.028	0.0065
375-95-1	Perfluorononanoic acid (PFNA)	0.016	U	0.038	0.016
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.012	U	0.028	0.012
335-67-1	Perfluorooctanoic acid (PFOA)	0.0092	U	0.019	0.0092

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	98		60-155
STL01054	13C8 PFOS	102		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07070.d
Lims ID: 280-85171-A-25-A Lab Sample ID: 280-85171-25
Client ID: FB-5
Sample Type: Client
Inject. Date: 07-Jul-2016 20:24:45 ALS Bottle#: 0 Worklist Smp#: 35
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85171-A-25-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 08-Jul-2016 09:16:52 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK002

First Level Reviewer: fiedlerh Date: 08-Jul-2016 08:29:35

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.266	4.522	-0.256		34717412	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.592				ND			
298.9 > 98.9		5.592							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.885	6.027	-0.142		22300714	10.0			
10 Perfluorohexane Sulfonate									
398.9 > 80.0		6.433				ND			
398.9 > 98.9		6.433							
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.434				ND			
363.0 > 168.9		6.434							
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.319	6.433	-0.114		2711223	9.46			
$ 14 13C8 PFOA									
421.0 > 375.9	6.660	6.773	-0.113	1.000	28775762	9.78			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.660	6.773	-0.113		36389755	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9		6.774				ND			
413.0 > 169.0		6.774							
$ 18 13C8 PFOS									
506.9 > 80.0	6.932	7.036	-0.104	0.999	6246362	9.74			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.942	7.036	-0.094		10028729	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.932	7.037	-0.105	0.999	271781	0.1505			R
498.9 > 98.9	6.942	7.037	-0.095	1.000	106652		2.55(1.31-2.43)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.952	7.056	-0.104		26530570	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9		7.056				ND			
463.0 > 218.9		7.056							
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.206	7.301	-0.095		29132722	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.414	7.508	-0.094		16923408	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.583	7.687	-0.104		26715035	10.0			
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.671	7.728	-0.057		778285	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND
R - Failed Signal Ratio Test
s - Failed ISTD Recovery Test

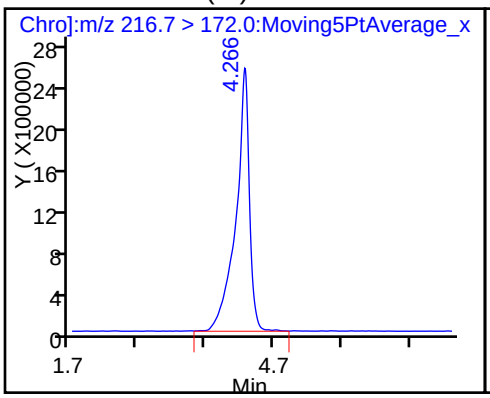
Report Date: 08-Jul-2016 09:17:48 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

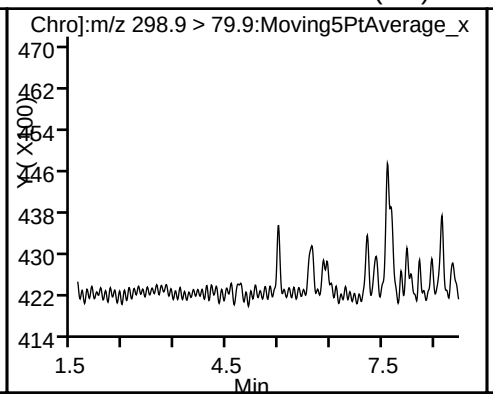
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07070.d

Injection Date:	07-Jul-2016 20:24:45	Instrument ID:	LC_LCMS5		
Lims ID:	280-85171-A-25-A	Lab Sample ID:	280-85171-25		
Client ID:	FB-5				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	35
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

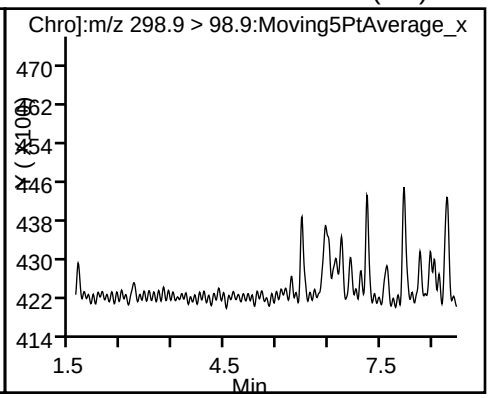
* 1 13C4 PFBA (IS)



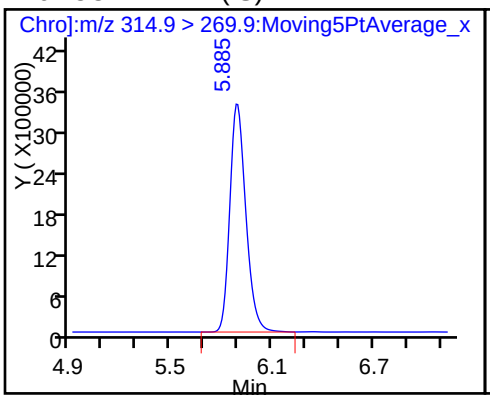
4 Perfluorobutane Sulfonate (ND)



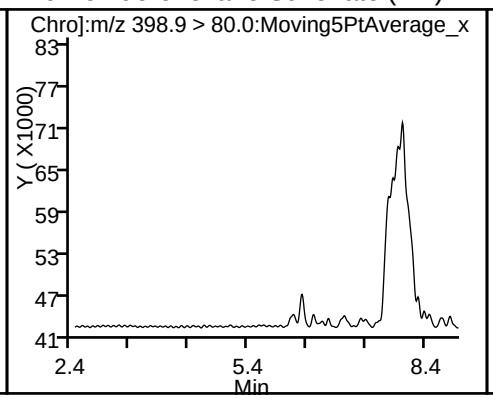
4 Perfluorobutane Sulfonate (ND)



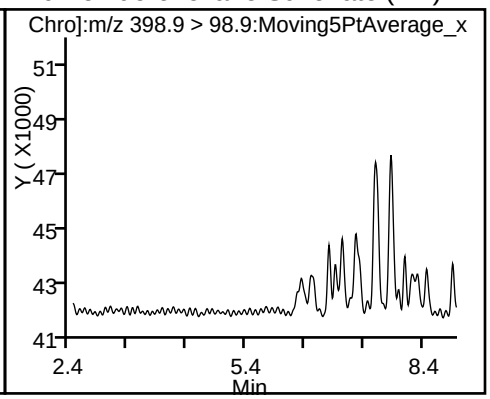
* 6 13C2 PFHxA (IS)



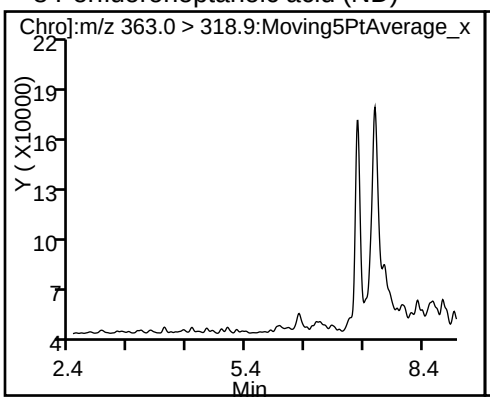
10 Perfluorohexane Sulfonate (ND)



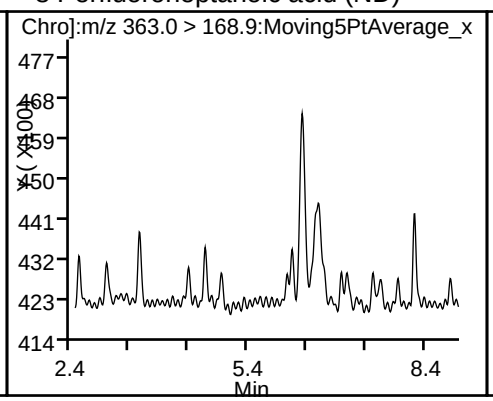
10 Perfluorohexane Sulfonate (ND)



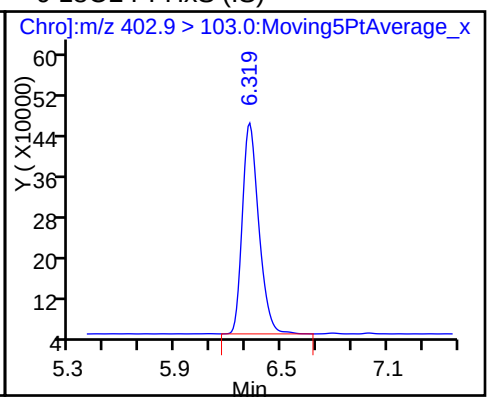
8 Perfluoroheptanoic acid (ND)



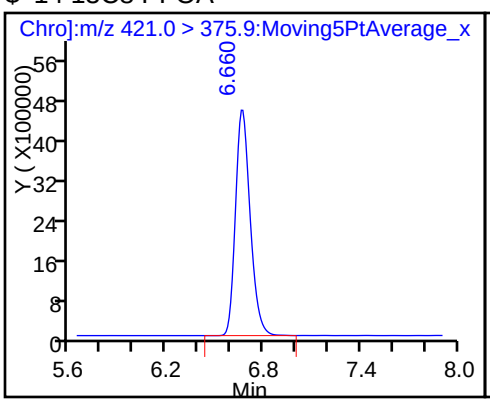
8 Perfluoroheptanoic acid (ND)



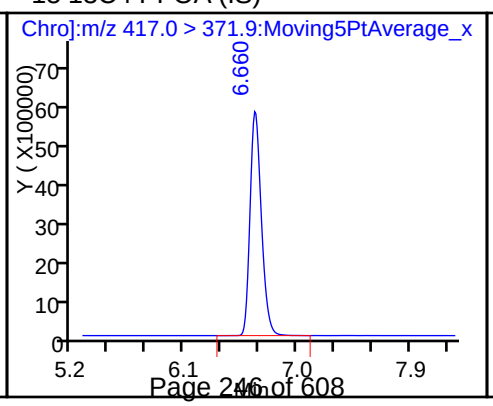
* 9 18O2 PFHxS (IS)



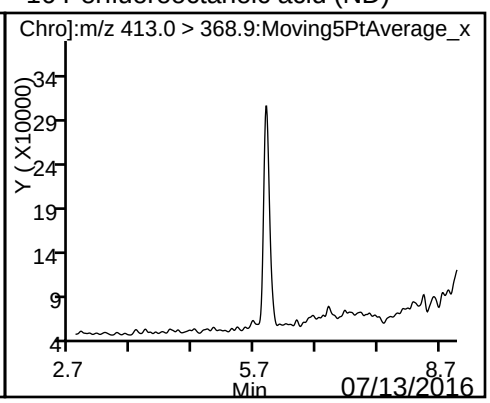
$ 14 13C8 PFOA



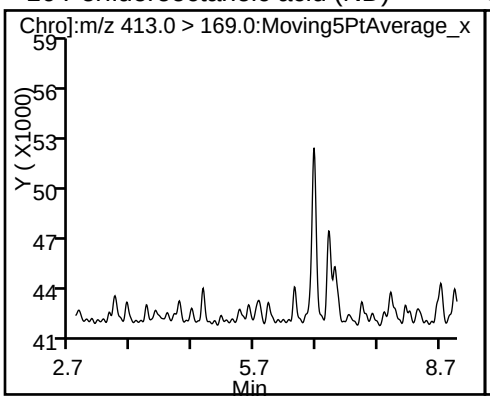
* 15 13C4 PFOA (IS)



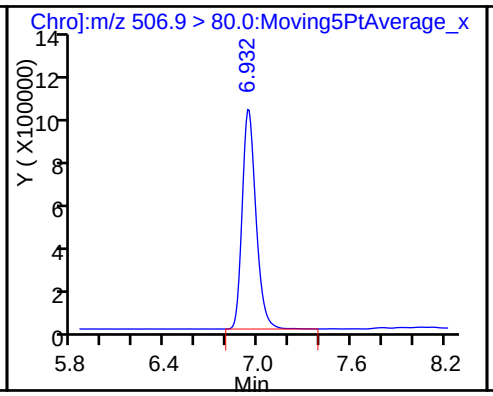
16 Perfluorooctanoic acid (ND)



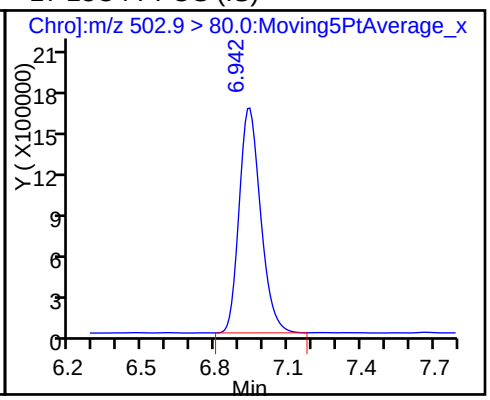
16 Perfluorooctanoic acid (ND)



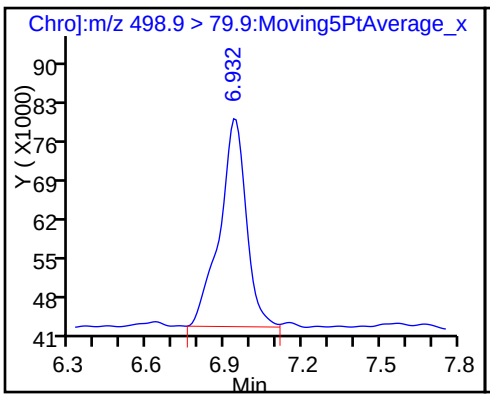
$ 18 13C8 PFOS



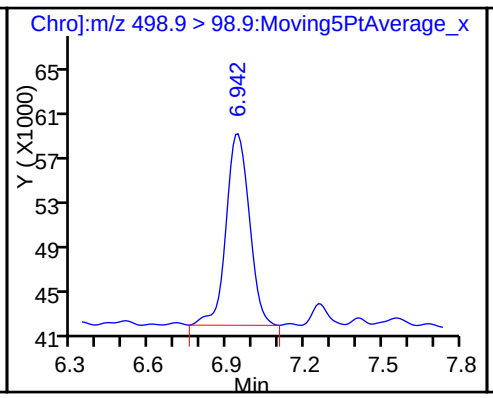
* 17 13C4 PFOS (IS)



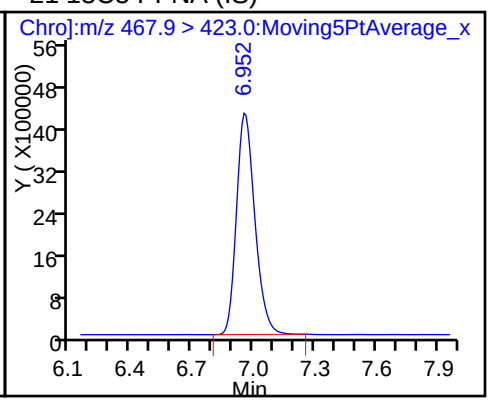
19 Perfluorooctane sulfonic acid



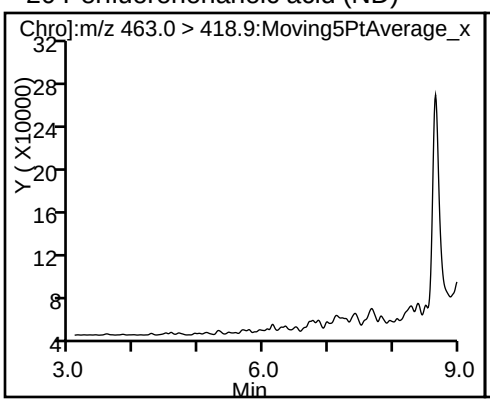
19 Perfluorooctane sulfonic acid



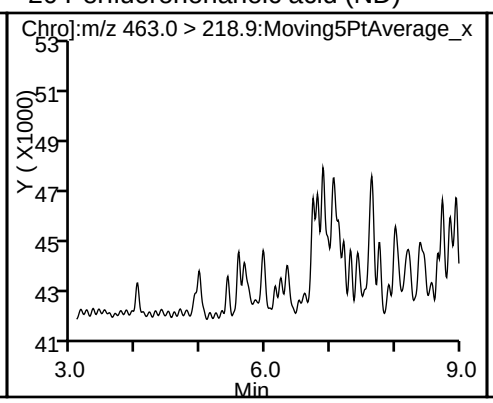
* 21 13C5 PFNA (IS)



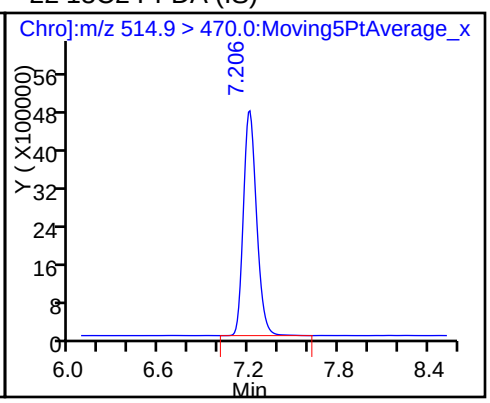
20 Perfluorononanoic acid (ND)



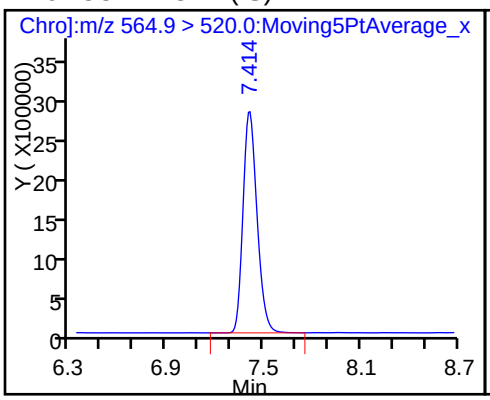
20 Perfluorononanoic acid (ND)



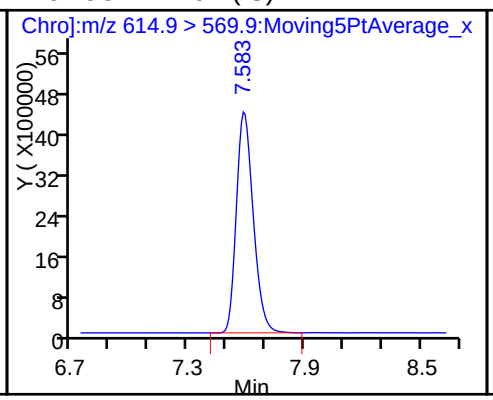
* 22 13C2 PFDA (IS)



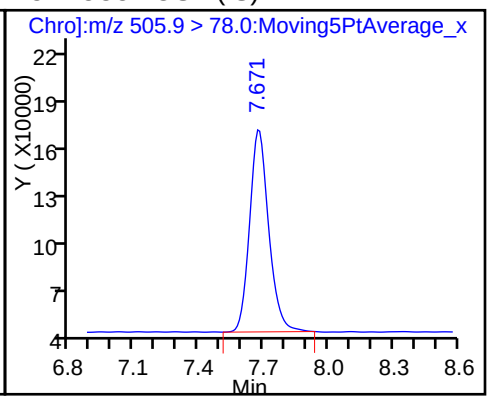
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB004-5.8 | Lab Sample ID: 280-85171-26

Matrix: Solid | Lab File ID: PC516G08029.d

Analysis Method: DV-LC-0012 | Date Collected: 06/30/2016 15:45

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.41(g) | Date Analyzed: 07/08/2016 17:19

Con. Extract Vol.: 20(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 9.0 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 333083 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.15	U	0.84	0.15
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.13	U	0.84	0.13
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.30	U	0.84	0.30
375-95-1	Perfluorononanoic acid (PFNA)	0.23	U	0.84	0.23
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.15	U	0.84	0.15
335-67-1	Perfluorooctanoic acid (PFOA)	0.24	U	0.84	0.24

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	108		57-153
STL01054	13C8 PFOS	104		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08029.d
Lims ID: 280-85171-A-26-A Lab Sample ID: 280-85171-26
Client ID: SB004-5.8
Sample Type: Client
Inject. Date: 08-Jul-2016 17:19:38 ALS Bottle#: 0 Worklist Smp#: 24
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85171-A-26-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 11-Jul-2016 11:13:57 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK031

First Level Reviewer: fiedlerh Date: 11-Jul-2016 11:01:57

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.247	4.219	0.028		24820352	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.336				ND			
298.9 > 98.9		5.336							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.847	5.809	0.038		18580746	10.0			
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.235				ND			
363.0 > 168.9		6.235							
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.282	6.244	0.038		2473857	9.46			
10 Perfluorohexane Sulfonate									
398.9 > 80.0		6.244				ND			
398.9 > 98.9		6.244							
16 Perfluorooctanoic acid									
413.0 > 368.9		6.584				ND			
413.0 > 169.0		6.584							
$ 14 13C8 PFOA									
421.0 > 375.9	6.622	6.593	0.029	1.000	25573910	10.6			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.622	6.593	0.029		29942049	10.0			
$ 18 13C8 PFOS									
506.9 > 80.0	6.903	6.865	0.038	1.000	5352505	9.64			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.904	6.866	0.038		8678331	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9		6.866				ND			
498.9 > 98.9		6.866							

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
20 Perfluorononanoic acid									
463.0 > 418.9		6.886				ND			
463.0 > 218.9		6.886							
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.924	6.895	0.029		24288024	10.0			
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.168	7.149	0.019		25208766	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.395	7.366	0.029		16013911	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.573	7.555	0.019		31050728	10.0			
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.595	7.614	-0.019		24994666	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

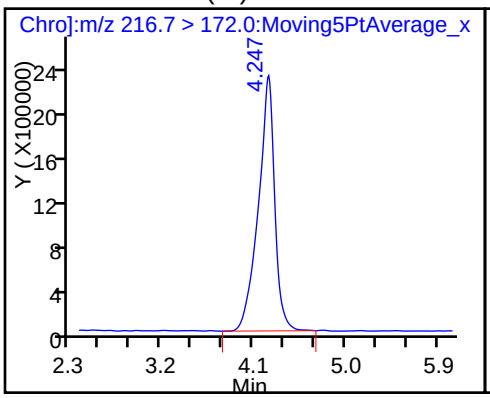
Report Date: 11-Jul-2016 11:14:09 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

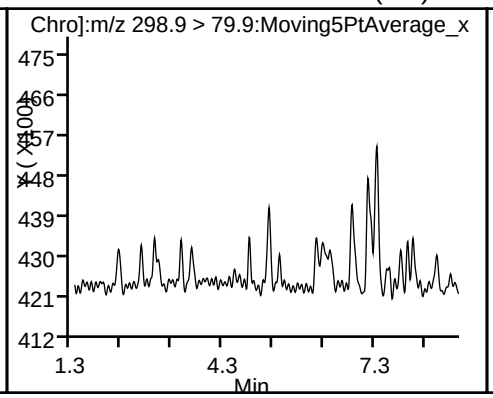
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08029.d

Injection Date:	08-Jul-2016 17:19:38	Instrument ID:	LC_LCMS5		
Lims ID:	280-85171-A-26-A	Lab Sample ID:	280-85171-26		
Client ID:	SB004-5.8				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	24
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

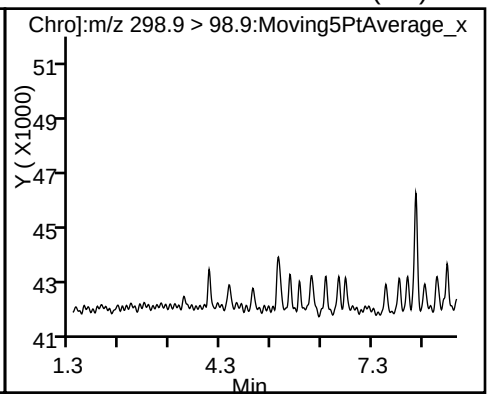
* 1 13C4 PFBA (IS)



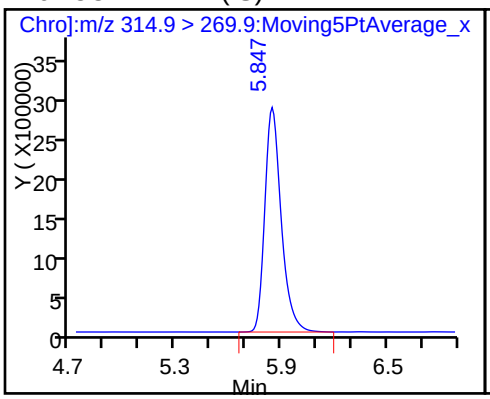
4 Perfluorobutane Sulfonate (ND)



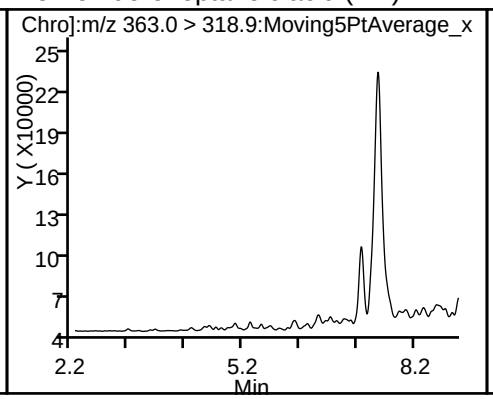
4 Perfluorobutane Sulfonate (ND)



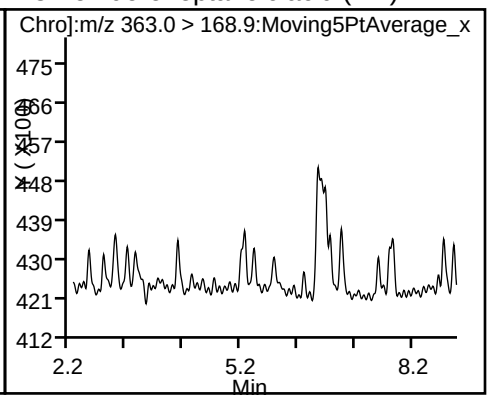
* 6 13C2 PFHxA (IS)



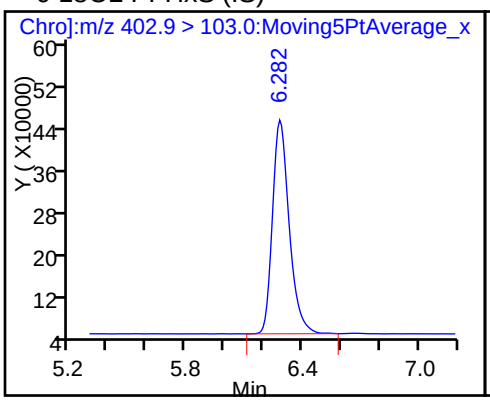
8 Perfluoroheptanoic acid (ND)



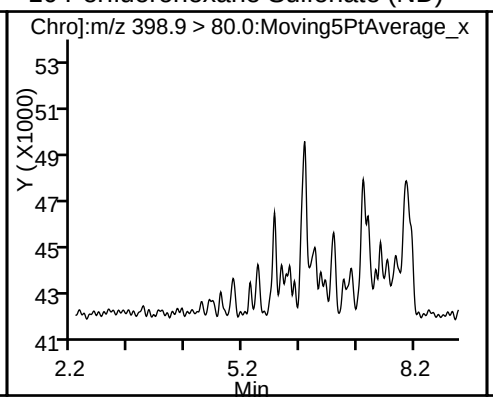
8 Perfluoroheptanoic acid (ND)



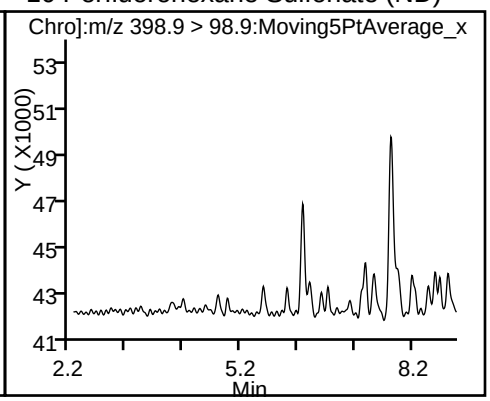
* 9 18O2 PFHxS (IS)



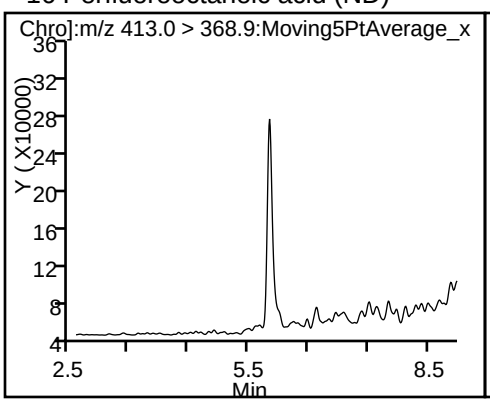
10 Perfluorohexane Sulfonate (ND)



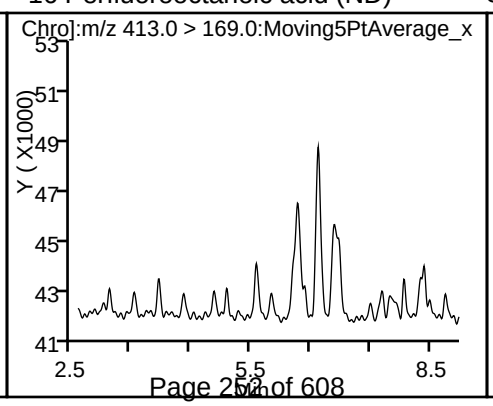
10 Perfluorohexane Sulfonate (ND)



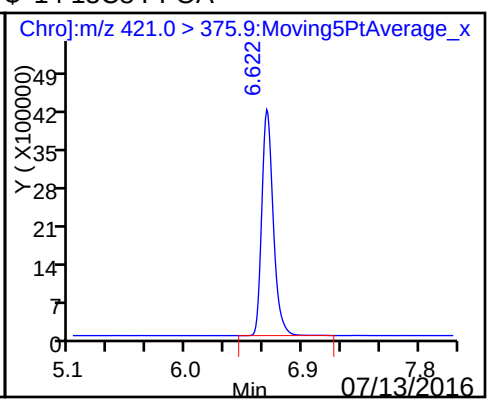
16 Perfluorooctanoic acid (ND)



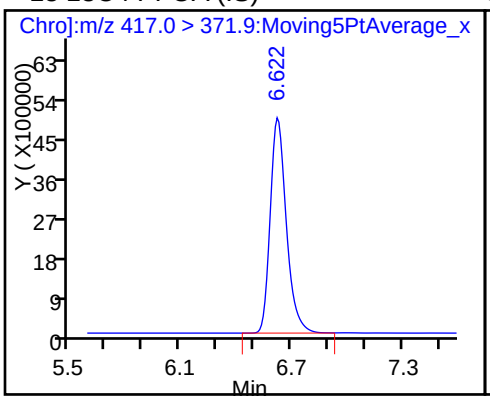
16 Perfluorooctanoic acid (ND)



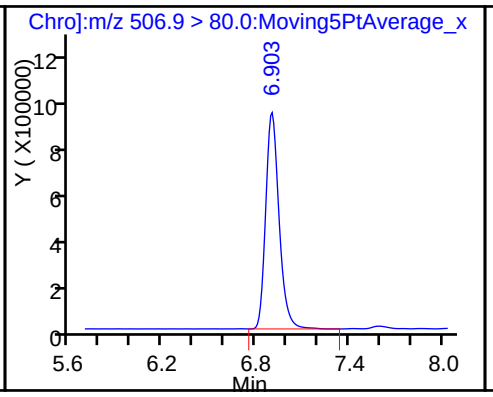
$ 14 13C8 PFOA



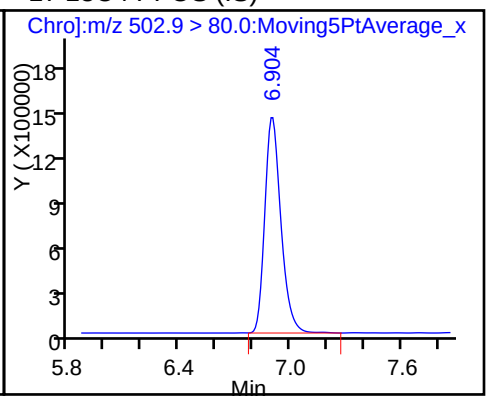
* 15 13C4 PFOA (IS)



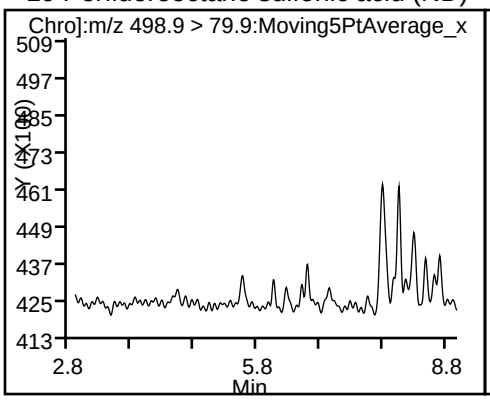
$ 18 13C8 PFOS



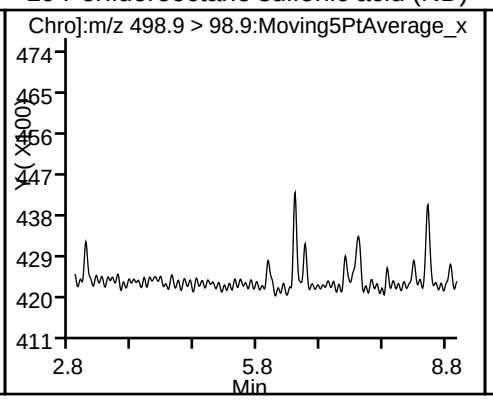
* 17 13C4 PFOS (IS)



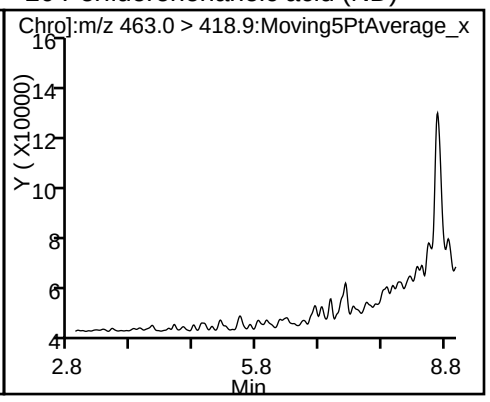
19 Perfluorooctane sulfonic acid (ND)



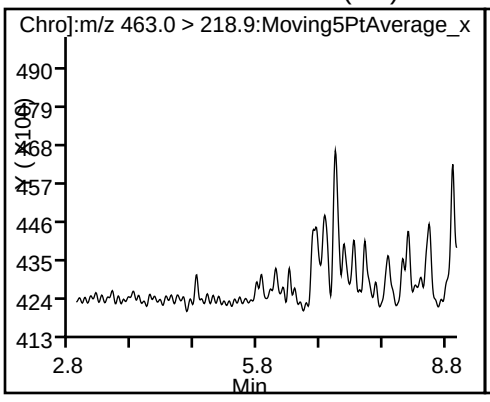
19 Perfluorooctane sulfonic acid (ND)



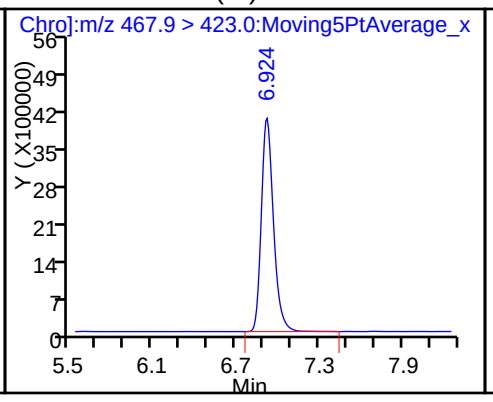
20 Perfluorononanoic acid (ND)



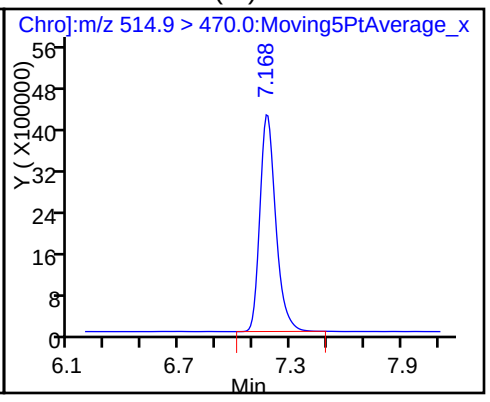
20 Perfluorononanoic acid (ND)



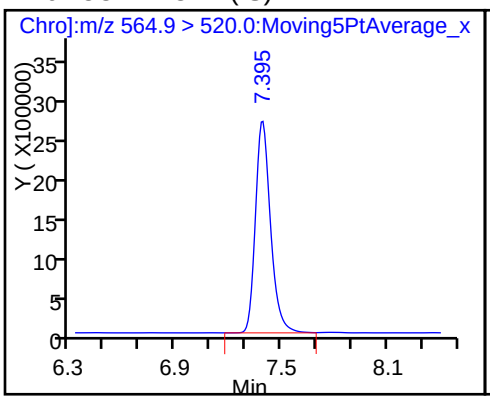
* 21 13C5 PFNA (IS)



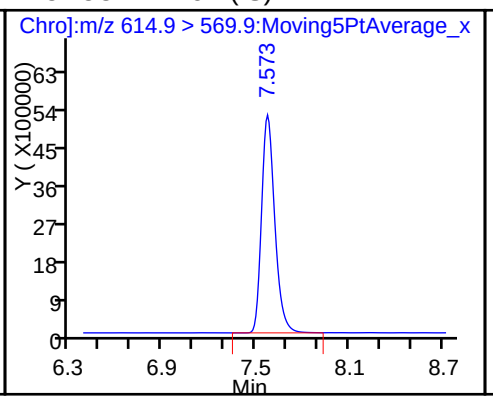
* 22 13C2 PFDA (IS)



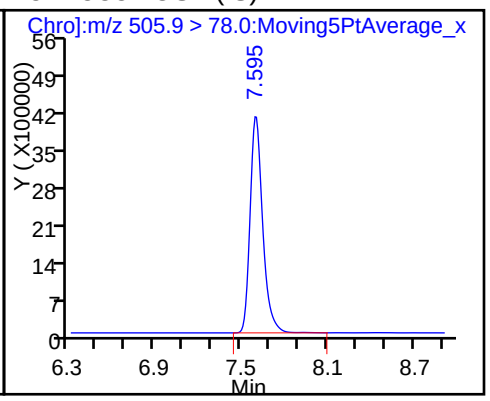
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB004-12.0 | Lab Sample ID: 280-85171-27

Matrix: Solid | Lab File ID: PC516G08030.d

Analysis Method: DV-LC-0012 | Date Collected: 06/30/2016 15:55

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.73(g) | Date Analyzed: 07/08/2016 17:31

Con. Extract Vol.: 20(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 8.9 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 333083 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.14	U	0.82	0.14
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.12	U	0.82	0.12
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.29	U	0.82	0.29
375-95-1	Perfluorononanoic acid (PFNA)	0.22	U	0.82	0.22
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.14	U	0.82	0.14
335-67-1	Perfluorooctanoic acid (PFOA)	0.24	U	0.82	0.24

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	108		57-153
STL01054	13C8 PFOS	106		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08030.d
Lims ID: 280-85171-A-27-A Lab Sample ID: 280-85171-27
Client ID: SB004-12.0
Sample Type: Client
Inject. Date: 08-Jul-2016 17:31:56 ALS Bottle#: 0 Worklist Smp#: 25
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85171-A-27-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 11-Jul-2016 11:13:57 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK031

First Level Reviewer: fiedlerh Date: 11-Jul-2016 11:02:13

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.219	4.219	0.0		25625874	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.336				ND			
298.9 > 98.9		5.336							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.847	5.809	0.038		19323709	10.0			
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.235				ND			
363.0 > 168.9		6.235							
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.291	6.244	0.047		2699745	9.46			
10 Perfluorohexane Sulfonate									
398.9 > 80.0		6.244				ND			
398.9 > 98.9		6.244							
16 Perfluorooctanoic acid									
413.0 > 368.9		6.584				ND			
413.0 > 169.0		6.584							
$ 14 13C8 PFOA									
421.0 > 375.9	6.641	6.593	0.048	1.000	26073160	10.6			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.641	6.593	0.048		30541890	10.0			
$ 18 13C8 PFOS									
506.9 > 80.0	6.913	6.865	0.048	1.000	5664584	9.87			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.913	6.866	0.047		8973164	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9		6.866				ND			
498.9 > 98.9		6.866							

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
20 Perfluorononanoic acid									
463.0 > 418.9		6.886				ND			
463.0 > 218.9		6.886							
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.943	6.895	0.048		24541121	10.0			
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.196	7.149	0.047		26941191	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.414	7.366	0.048		16485832	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.602	7.555	0.048		33668281	10.0			
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.624	7.614	0.010		27093125	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

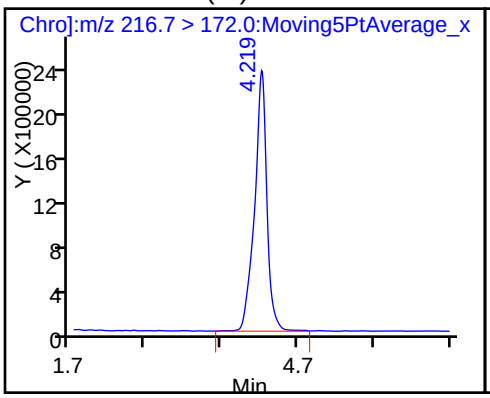
Report Date: 11-Jul-2016 11:14:06 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

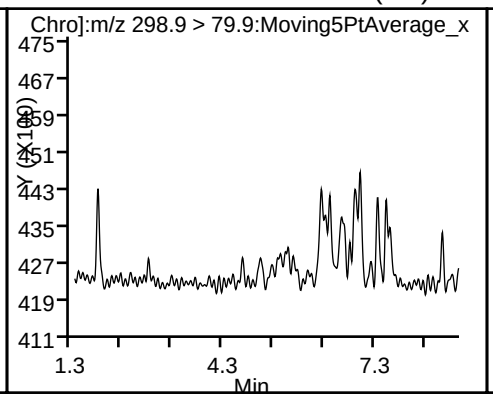
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08030.d

Injection Date:	08-Jul-2016 17:31:56	Instrument ID:	LC_LCMS5		
Lims ID:	280-85171-A-27-A	Lab Sample ID:	280-85171-27		
Client ID:	SB004-12.0				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	25
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

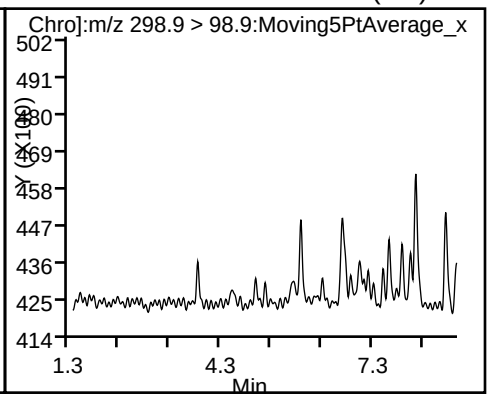
* 1 13C4 PFBA (IS)



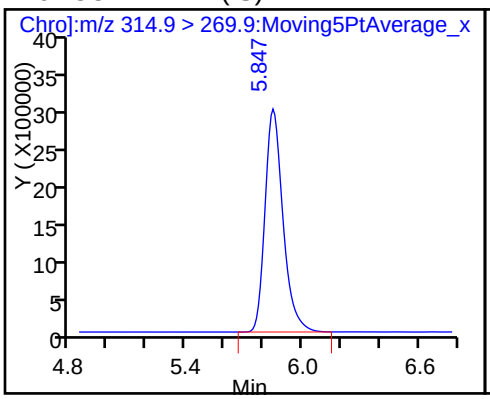
4 Perfluorobutane Sulfonate (ND)



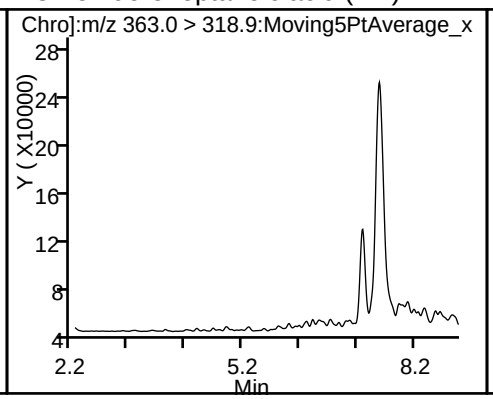
4 Perfluorobutane Sulfonate (ND)



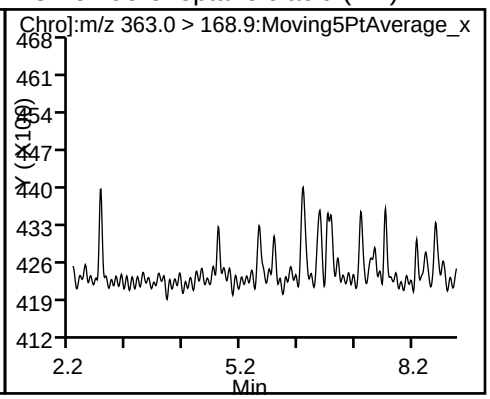
* 6 13C2 PFHxA (IS)



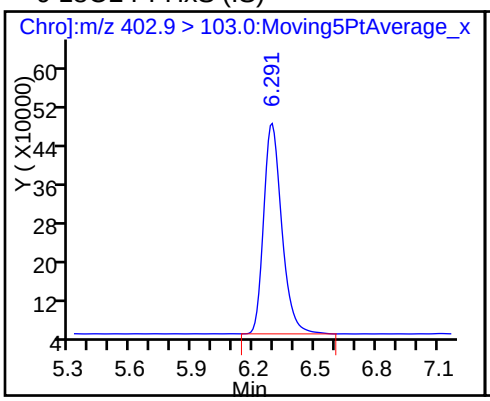
8 Perfluoroheptanoic acid (ND)



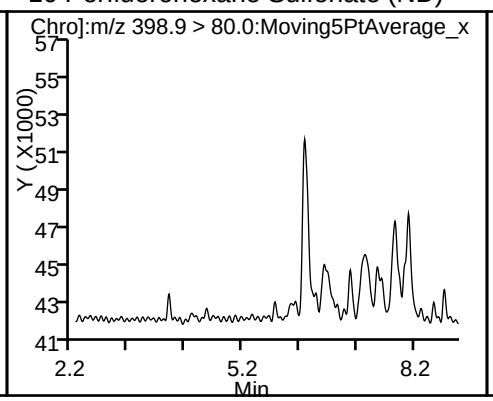
8 Perfluoroheptanoic acid (ND)



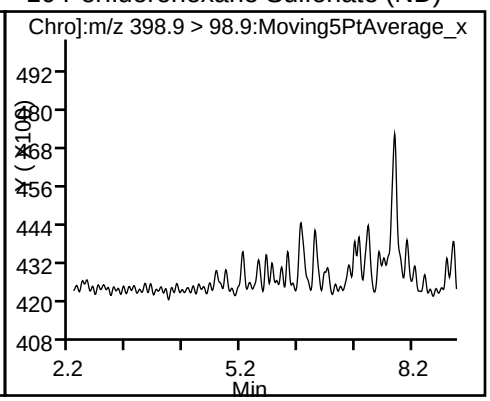
* 9 18O2 PFHxS (IS)



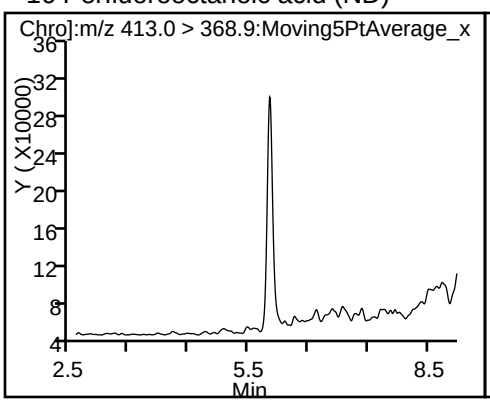
10 Perfluorohexane Sulfonate (ND)



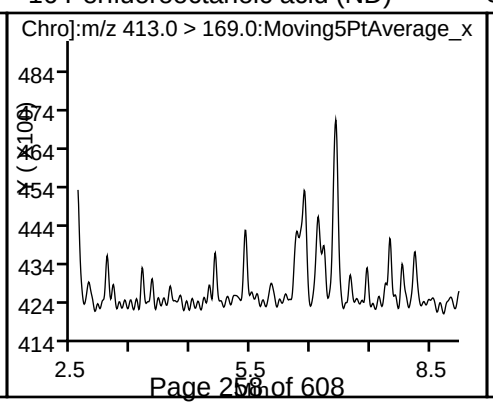
10 Perfluorohexane Sulfonate (ND)



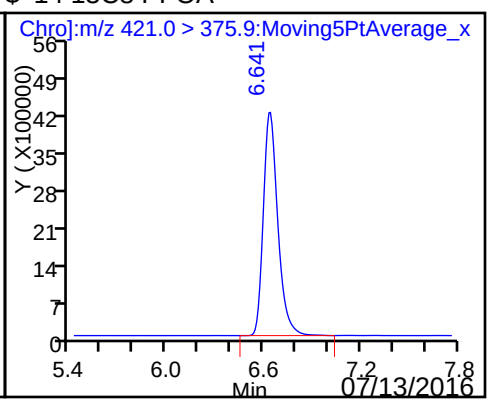
16 Perfluorooctanoic acid (ND)



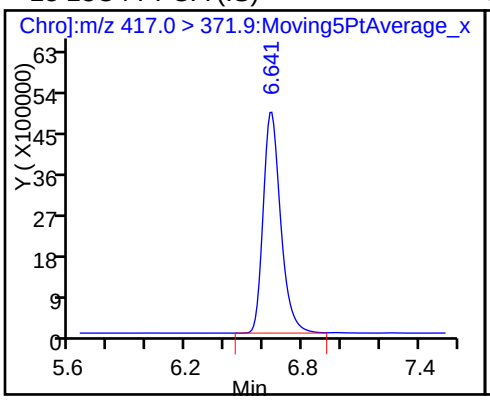
16 Perfluorooctanoic acid (ND)



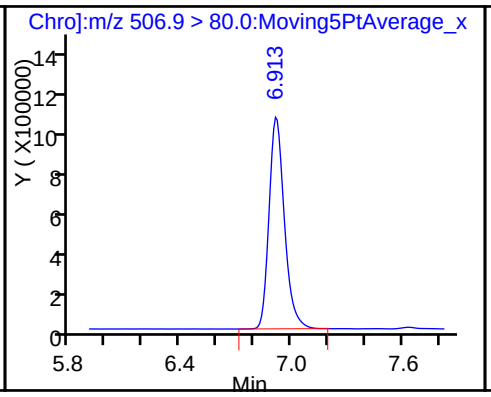
$ 14 13C8 PFOA



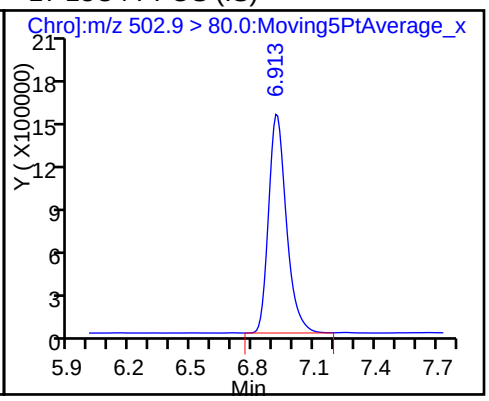
* 15 13C4 PFOA (IS)



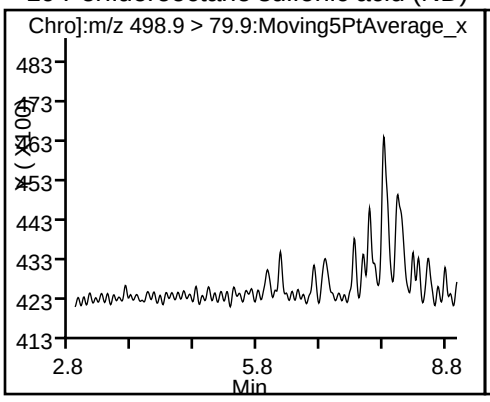
$ 18 13C8 PFOS



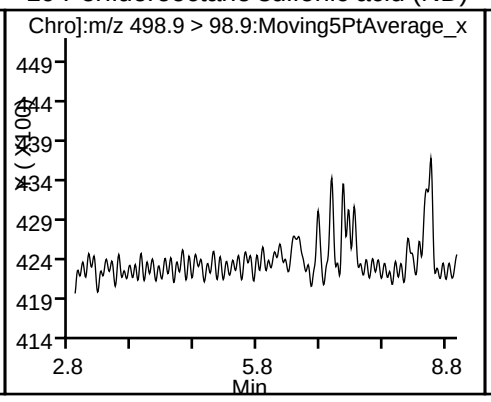
* 17 13C4 PFOS (IS)



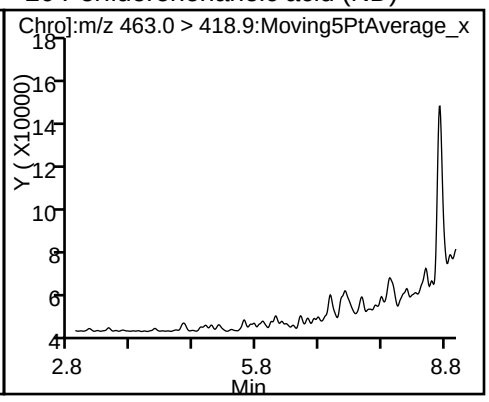
19 Perfluorooctane sulfonic acid (ND)



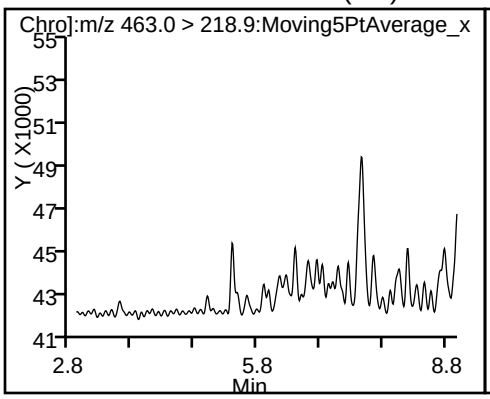
19 Perfluorooctane sulfonic acid (ND)



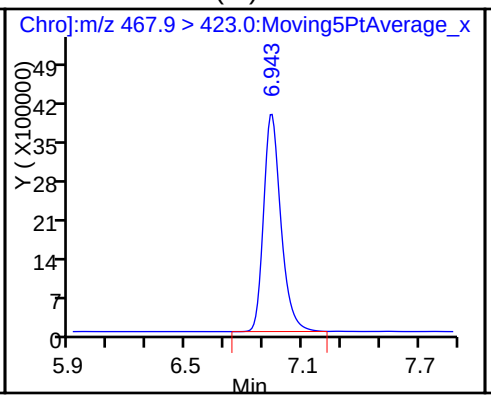
20 Perfluorononanoic acid (ND)



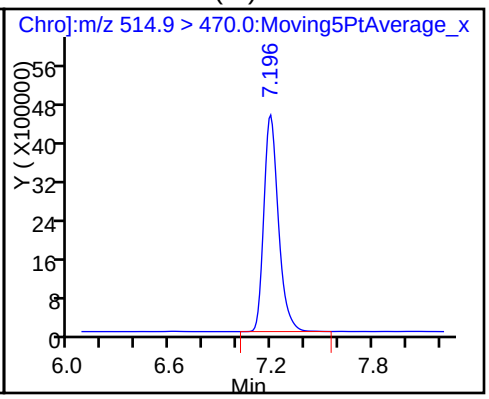
20 Perfluorononanoic acid (ND)



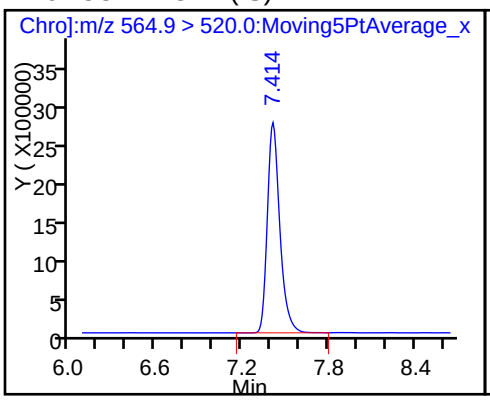
* 21 13C5 PFNA (IS)



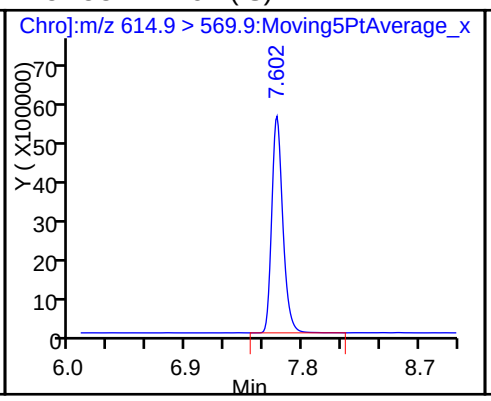
* 22 13C2 PFDA (IS)



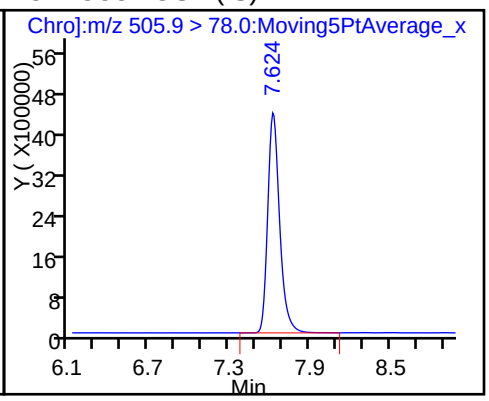
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB005-0.5 | Lab Sample ID: 280-85171-28

Matrix: Solid | Lab File ID: PC516G08031.d

Analysis Method: DV-LC-0012 | Date Collected: 06/30/2016 16:10

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.23(g) | Date Analyzed: 07/08/2016 17:44

Con. Extract Vol.: 20(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 5.5 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 333083 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.14	U	0.83	0.14
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.27	J	0.83	0.12
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	3.03		0.83	0.29
375-95-1	Perfluorononanoic acid (PFNA)	0.23	U	0.83	0.23
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	29.9		0.83	0.14
335-67-1	Perfluorooctanoic acid (PFOA)	0.62	J	0.83	0.24

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	108		57-153
STL01054	13C8 PFOS	101		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08031.d
Lims ID: 280-85171-A-28-A Lab Sample ID: 280-85171-28
Client ID: SB005-0.5
Sample Type: Client
Inject. Date: 08-Jul-2016 17:44:14 ALS Bottle#: 0 Worklist Smp#: 26
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85171-A-28-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 11-Jul-2016 11:13:57 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK031

First Level Reviewer: fiedlerh Date: 11-Jul-2016 11:02:33

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.238	4.219	0.019		28744470	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.336				ND			
298.9 > 98.9		5.336							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.847	5.809	0.038		20591966	10.0			
8 Perfluoroheptanoic acid									R
363.0 > 318.9	6.263	6.235	0.028	0.946	456421	0.1316			R
363.0 > 168.9	6.292	6.235	0.057	0.950	49229		9.27(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.272	6.244	0.028		2365221	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.282	6.244	0.038	1.002	1486067	1.46			R
398.9 > 98.9	6.282	6.244	0.038	1.002	525860		2.83(1.30-2.41)		
16 Perfluorooctanoic acid									
413.0 > 368.9	6.632	6.584	0.048	1.001	1232810	0.3018			
413.0 > 169.0	6.622	6.584	0.038	1.000	350477		3.52(2.86-5.31)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.622	6.593	0.029	1.000	27382599	10.6			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.622	6.593	0.029		31906237	10.0			
$ 18 13C8 PFOS									
506.9 > 80.0	6.903	6.865	0.038	1.000	5210838	9.35			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.904	6.866	0.038		8717319	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.904	6.866	0.038	1.000	15379876	14.4			R
498.9 > 98.9	6.904	6.866	0.038	1.000	5141418		2.99(1.31-2.43)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
20 Perfluorononanoic acid									
463.0 > 418.9		6.886				ND			
463.0 > 218.9		6.886							
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.924	6.895	0.029		25595183	10.0			
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.177	7.149	0.028		27440242	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.395	7.366	0.029		17579814	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.573	7.555	0.019		32587328	10.0			
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.605	7.614	-0.009		21611727	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

R - Failed Signal Ratio Test

Report Date: 11-Jul-2016 11:14:04 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08031.d

Injection Date: 08-Jul-2016 17:44:14 Instrument ID: LC_LCMS5

Lims ID: 280-85171-A-28-A Lab Sample ID: 280-85171-28

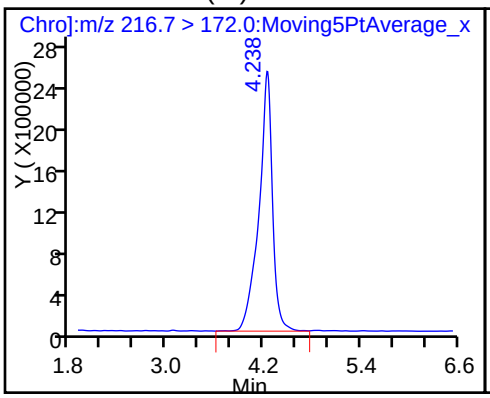
Client ID: SB005-0.5

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 26

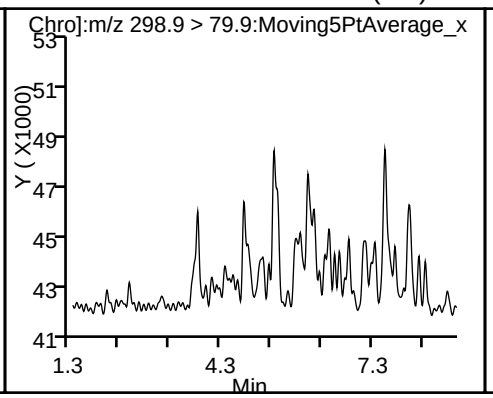
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

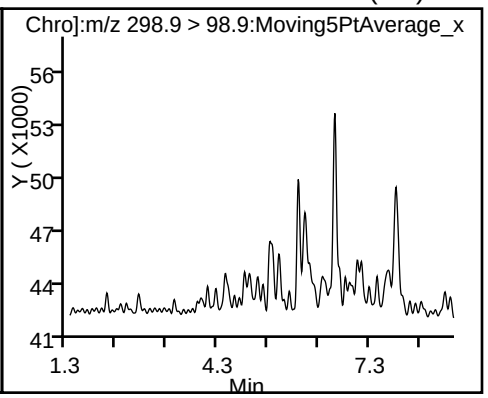
* 1 13C4 PFBA (IS)



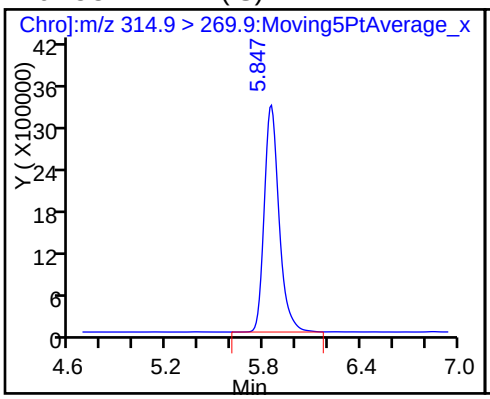
4 Perfluorobutane Sulfonate (ND)



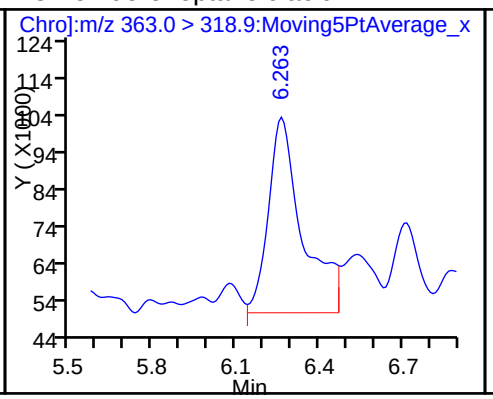
4 Perfluorobutane Sulfonate (ND)



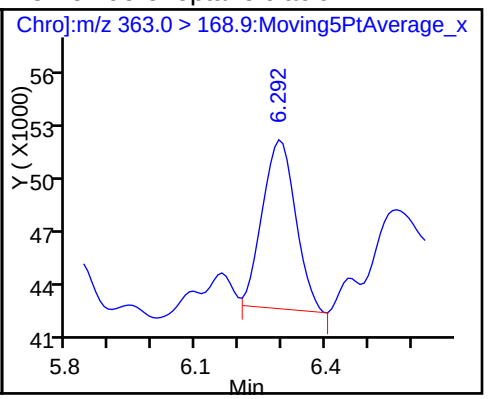
* 6 13C2 PFHxA (IS)



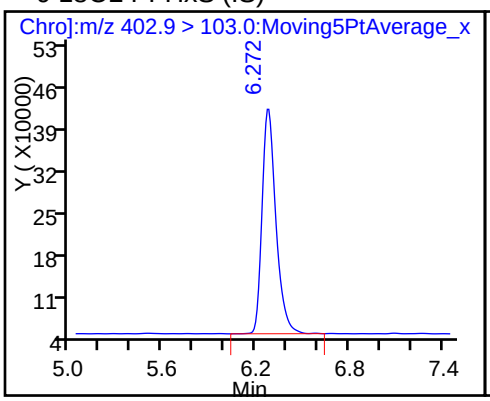
8 Perfluoroheptanoic acid



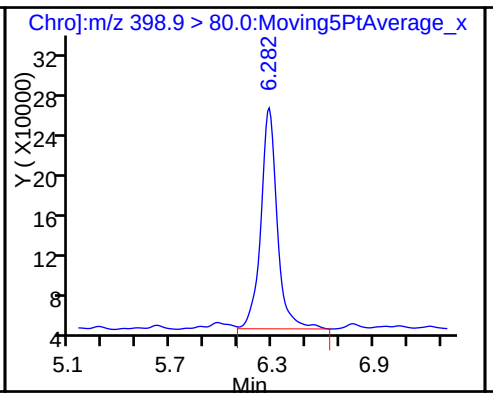
8 Perfluoroheptanoic acid



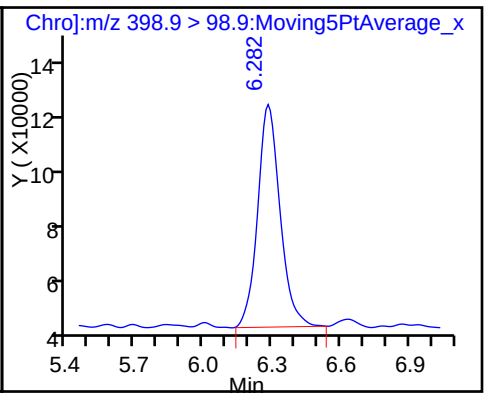
* 9 18O2 PFHxS (IS)



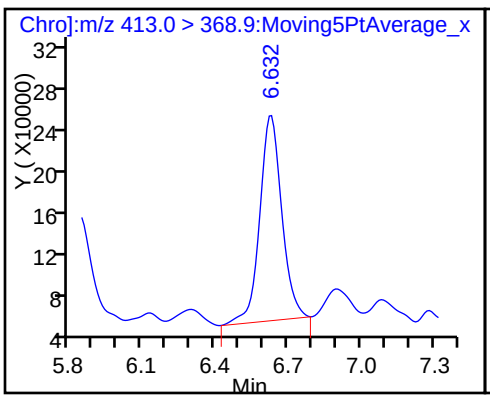
10 Perfluorohexane Sulfonate



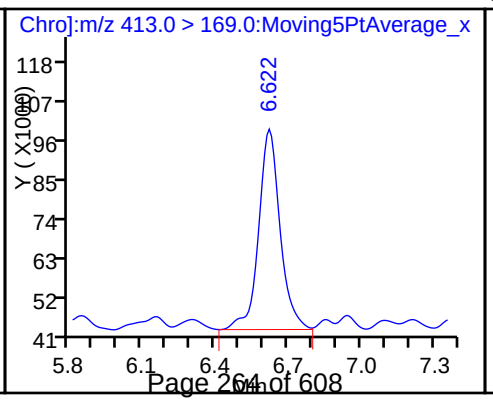
10 Perfluorohexane Sulfonate



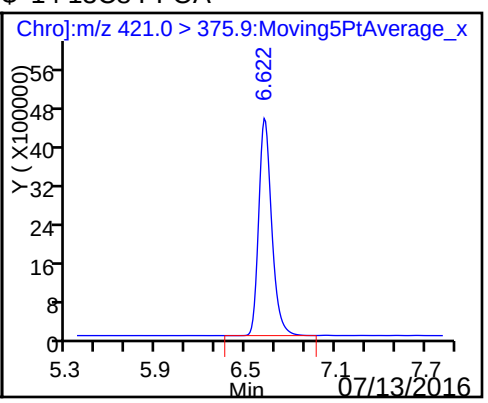
16 Perfluorooctanoic acid



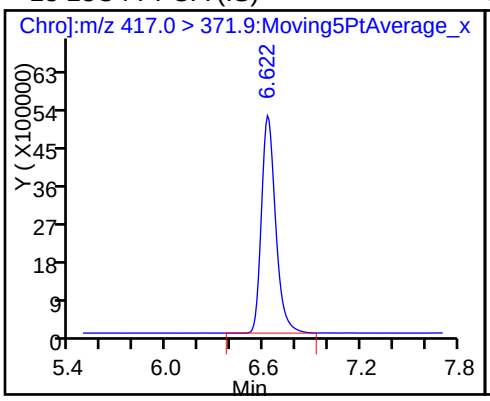
16 Perfluorooctanoic acid



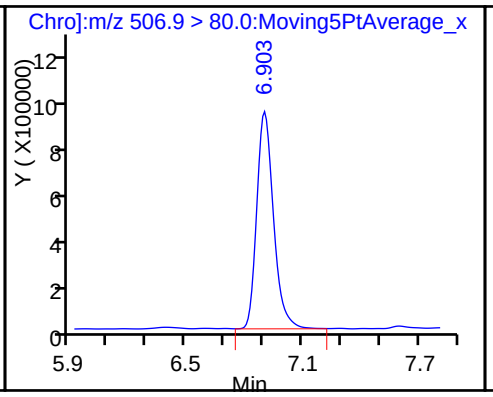
$ 14 13C8 PFOA



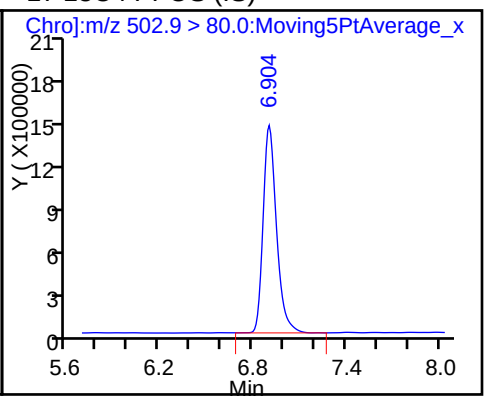
* 15 13C4 PFOA (IS)



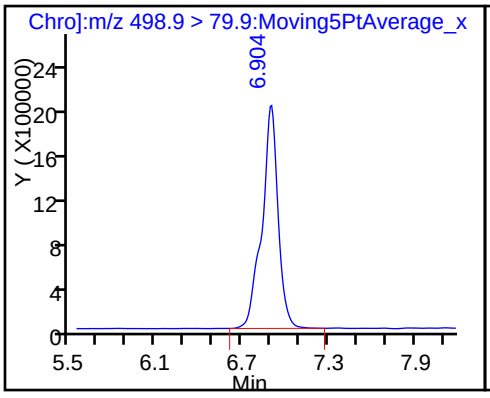
$ 18 13C8 PFOS



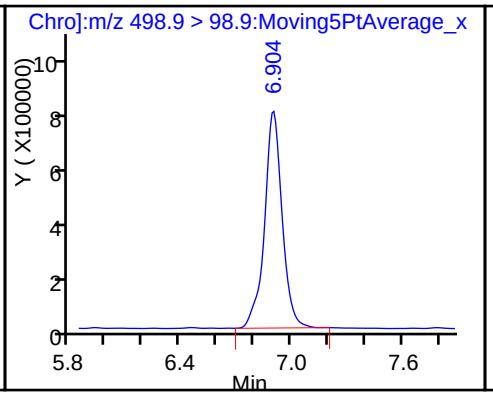
* 17 13C4 PFOS (IS)



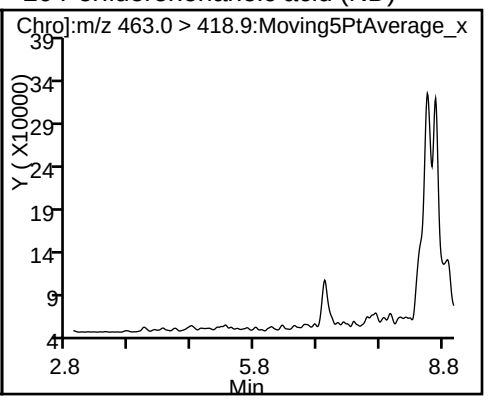
19 Perfluorooctane sulfonic acid



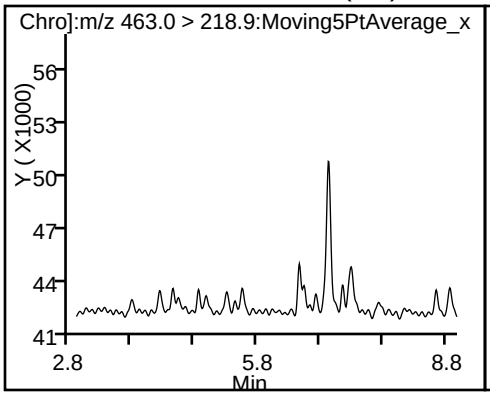
19 Perfluorooctane sulfonic acid



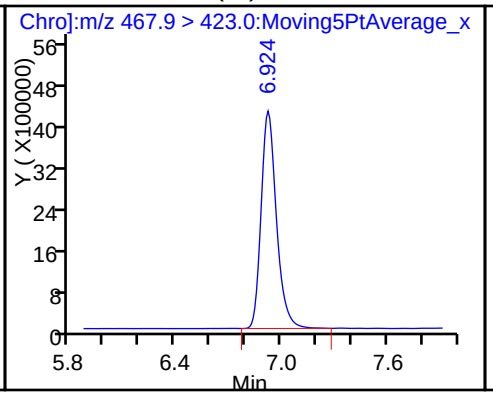
20 Perfluorononanoic acid (ND)



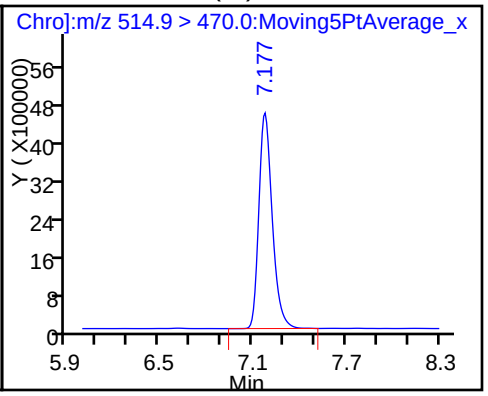
20 Perfluorononanoic acid (ND)



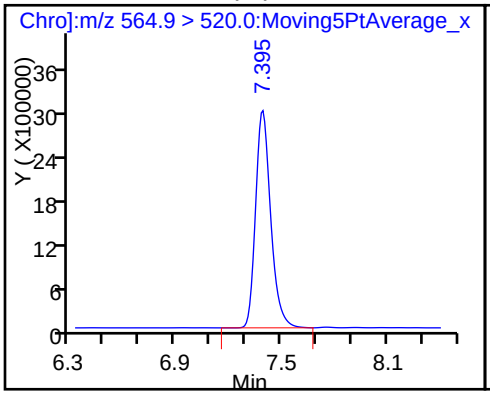
* 21 13C5 PFNA (IS)



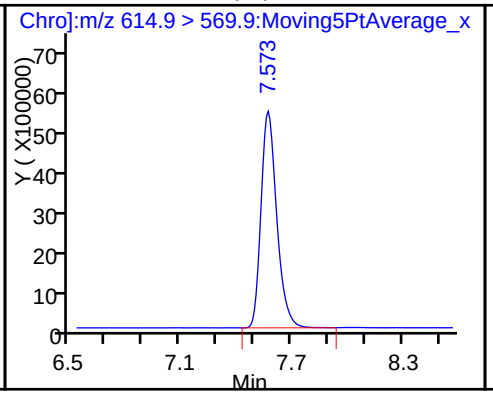
* 22 13C2 PFDA (IS)



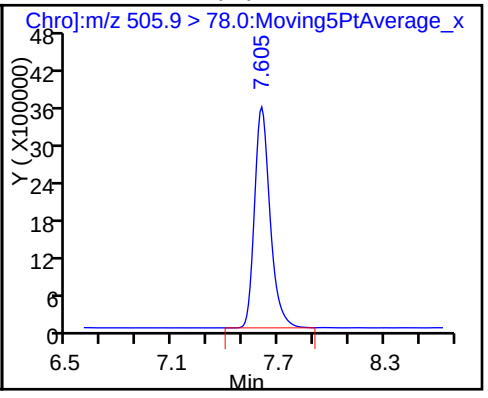
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB005-6.0 | Lab Sample ID: 280-85171-29

Matrix: Solid | Lab File ID: PC516G08032.d

Analysis Method: DV-LC-0012 | Date Collected: 06/30/2016 16:40

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.61(g) | Date Analyzed: 07/08/2016 17:56

Con. Extract Vol.: 20(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 7.0 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 333083 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.14	U	0.81	0.14
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.12	U	0.81	0.12
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.28	U	0.81	0.28
375-95-1	Perfluorononanoic acid (PFNA)	0.22	U	0.81	0.22
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.14	U	0.81	0.14
335-67-1	Perfluorooctanoic acid (PFOA)	0.23	U	0.81	0.23

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	105		57-153
STL01054	13C8 PFOS	98		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08032.d
Lims ID: 280-85171-A-29-A Lab Sample ID: 280-85171-29
Client ID: SB005-6.0
Sample Type: Client
Inject. Date: 08-Jul-2016 17:56:32 ALS Bottle#: 0 Worklist Smp#: 27
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85171-A-29-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 11-Jul-2016 11:13:57 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK031

First Level Reviewer: fiedlerh Date: 11-Jul-2016 11:02:49

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.219	4.219	0.0		25265458	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.336				ND			
298.9 > 98.9		5.336							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.837	5.809	0.028		19991594	10.0			
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.235				ND			
363.0 > 168.9		6.235							
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.272	6.244	0.028		2371866	9.46			
10 Perfluorohexane Sulfonate									
398.9 > 80.0		6.244				ND			
398.9 > 98.9		6.244							
16 Perfluorooctanoic acid									
413.0 > 368.9		6.584				ND			
413.0 > 169.0		6.584							
$ 14 13C8 PFOA									
421.0 > 375.9	6.622	6.593	0.029	1.000	26576277	10.3			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.622	6.593	0.029		31801614	10.0			
$ 18 13C8 PFOS									
506.9 > 80.0	6.894	6.865	0.029	1.000	5322167	9.05			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.894	6.866	0.028		9193803	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9		6.866				ND			
498.9 > 98.9		6.866							

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
20 Perfluorononanoic acid									
463.0 > 418.9		6.886				ND			
463.0 > 218.9		6.886							
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.914	6.895	0.019		26213206	10.0			
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.158	7.149	0.009		26994708	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.376	7.366	0.010		15735896	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.555	7.555	0.0		33188861	10.0			
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.576	7.614	-0.038		26411581	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

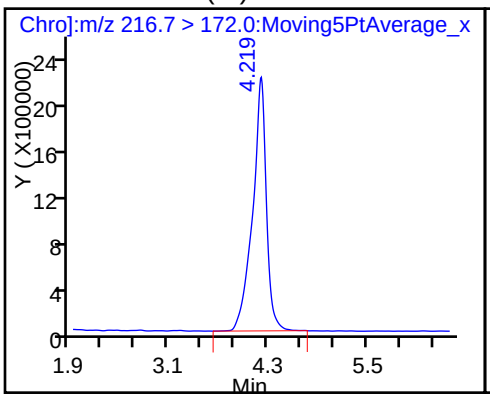
Report Date: 11-Jul-2016 11:14:02 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

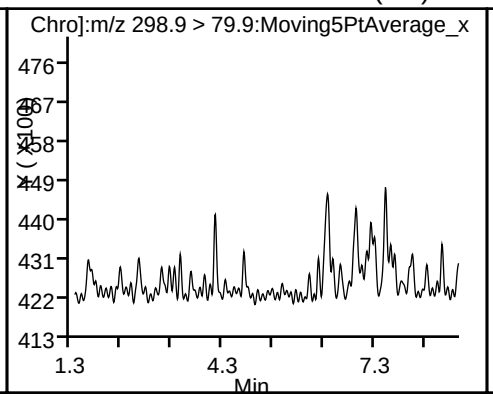
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08032.d

Injection Date:	08-Jul-2016 17:56:32	Instrument ID:	LC_LCMS5		
Lims ID:	280-85171-A-29-A	Lab Sample ID:	280-85171-29		
Client ID:	SB005-6.0				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	27
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

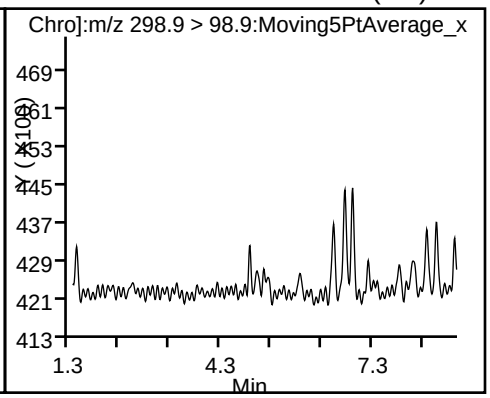
* 1 13C4 PFBA (IS)



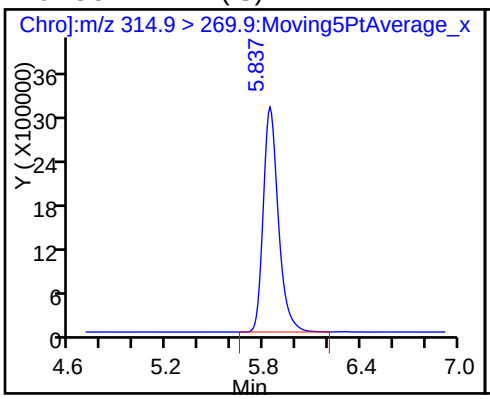
4 Perfluorobutane Sulfonate (ND)



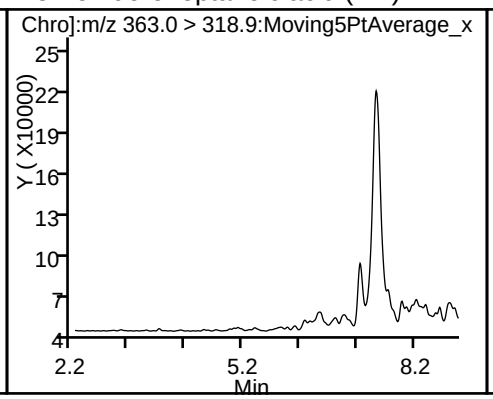
4 Perfluorobutane Sulfonate (ND)



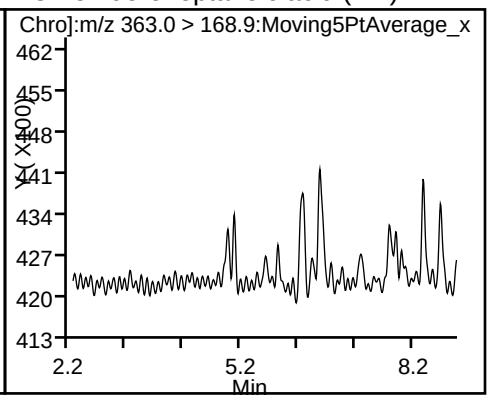
* 6 13C2 PFHxA (IS)



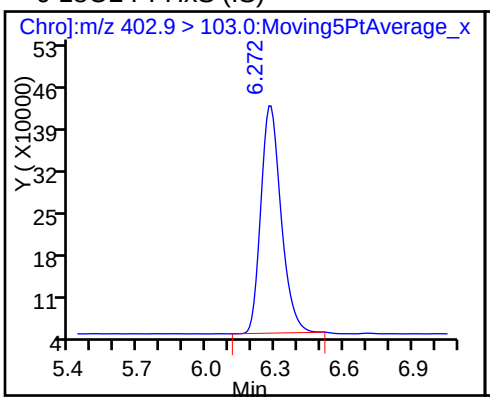
8 Perfluoroheptanoic acid (ND)



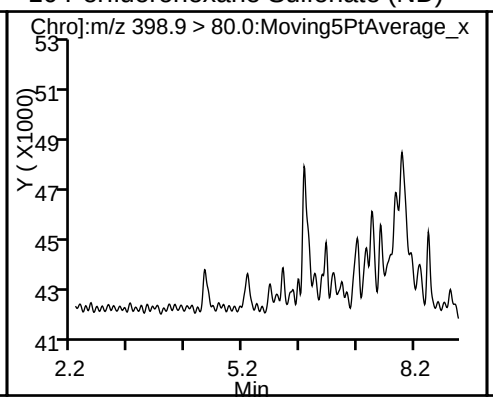
8 Perfluoroheptanoic acid (ND)



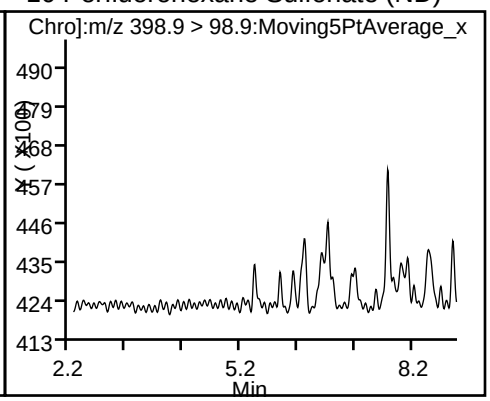
* 9 18O2 PFHxS (IS)



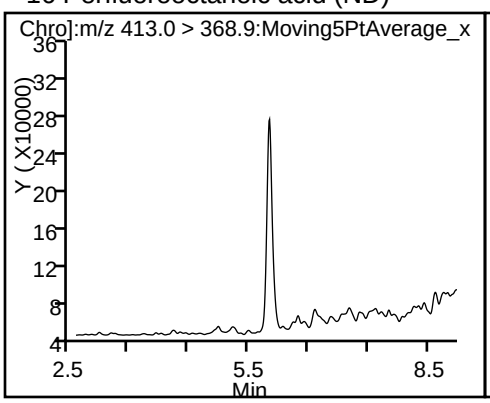
10 Perfluorohexane Sulfonate (ND)



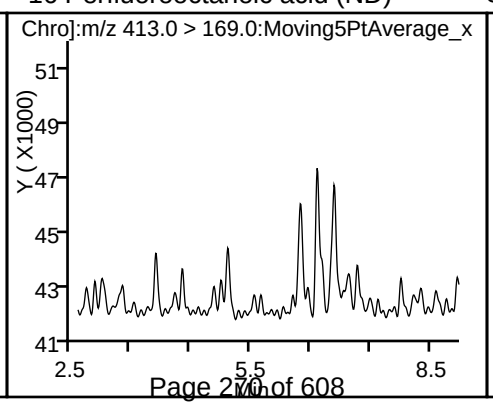
10 Perfluorohexane Sulfonate (ND)



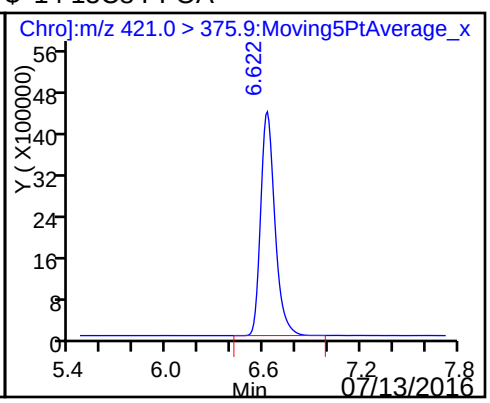
16 Perfluorooctanoic acid (ND)



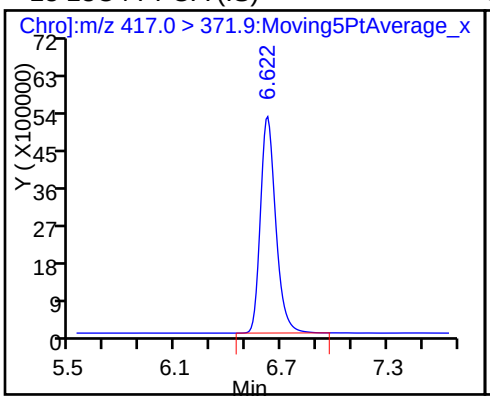
16 Perfluorooctanoic acid (ND)



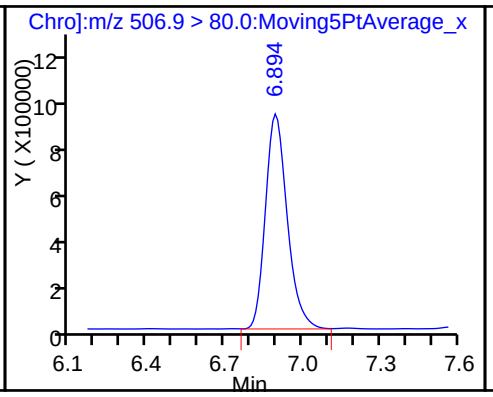
$ 14 13C8 PFOA



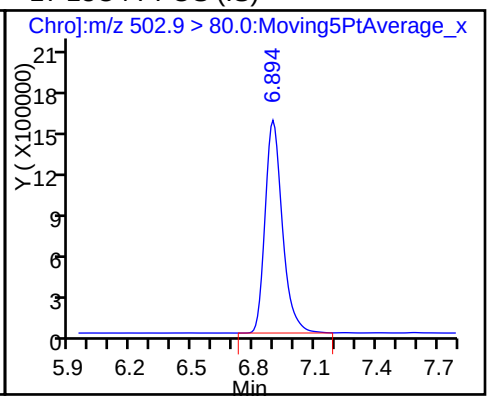
* 15 13C4 PFOA (IS)



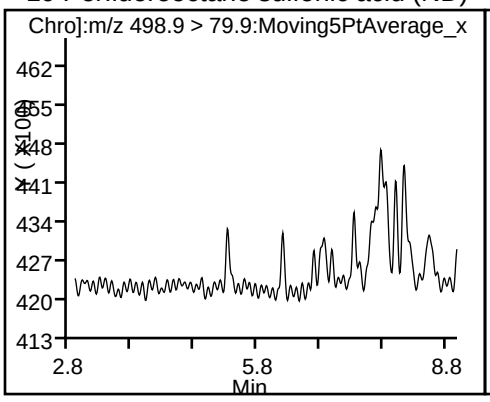
$ 18 13C8 PFOS



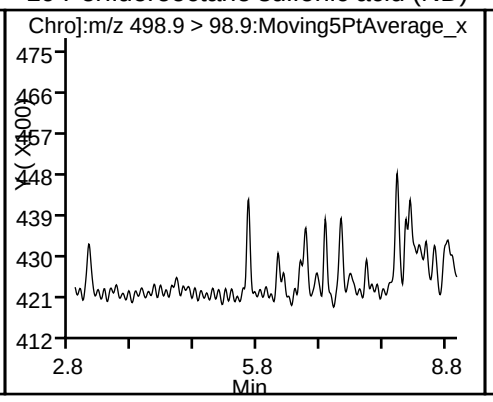
* 17 13C4 PFOS (IS)



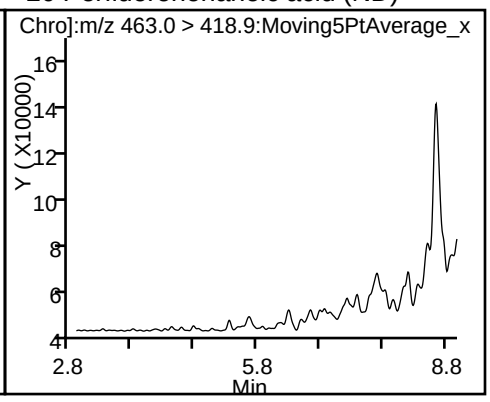
19 Perfluorooctane sulfonic acid (ND)



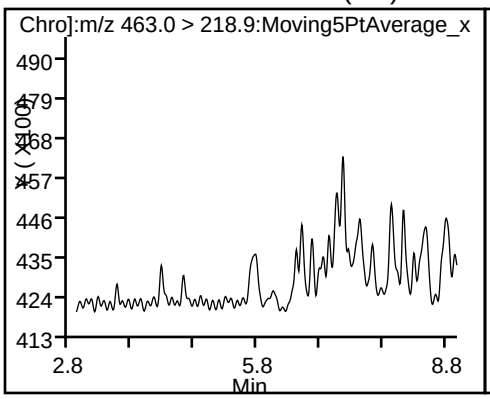
19 Perfluorooctane sulfonic acid (ND)



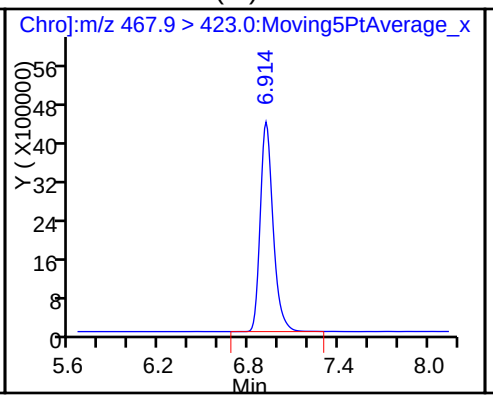
20 Perfluorononanoic acid (ND)



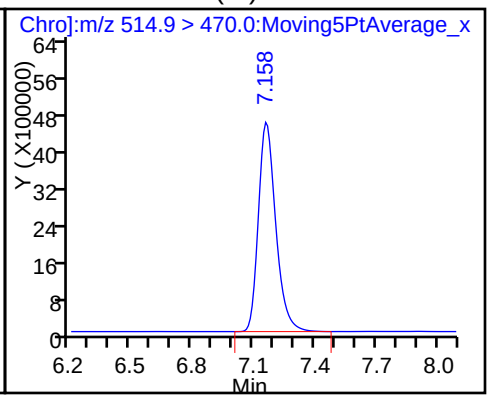
20 Perfluorononanoic acid (ND)



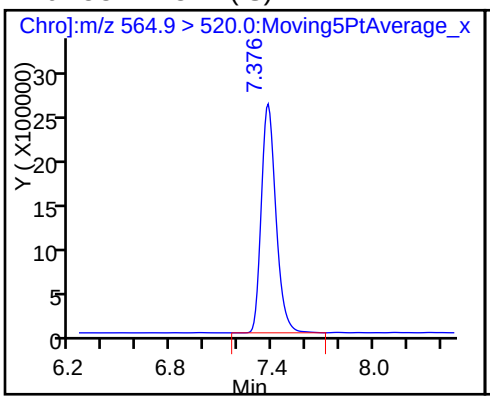
* 21 13C5 PFNA (IS)



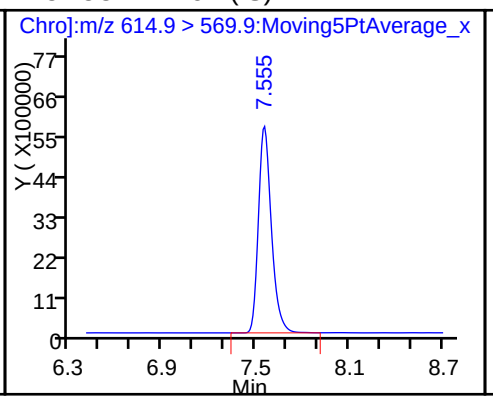
* 22 13C2 PFDA (IS)



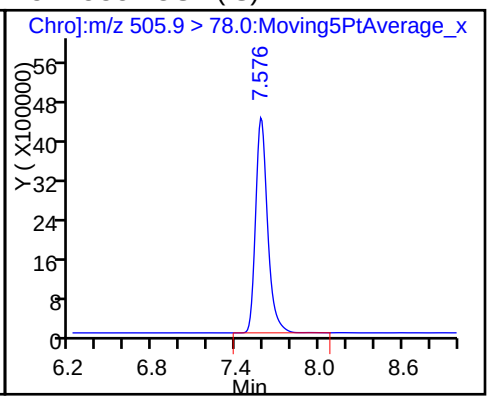
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB005-12.0 | Lab Sample ID: 280-85171-30

Matrix: Solid | Lab File ID: PC516G08033.d

Analysis Method: DV-LC-0012 | Date Collected: 06/30/2016 16:50

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.28(g) | Date Analyzed: 07/08/2016 18:08

Con. Extract Vol.: 20(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 9.6 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 333083 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.15	U	0.86	0.15
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.13	U	0.86	0.13
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.30	U	0.86	0.30
375-95-1	Perfluorononanoic acid (PFNA)	0.24	U	0.86	0.24
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.15	U	0.86	0.15
335-67-1	Perfluorooctanoic acid (PFOA)	0.25	U	0.86	0.25

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	108		57-153
STL01054	13C8 PFOS	100		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08033.d
Lims ID: 280-85171-A-30-A Lab Sample ID: 280-85171-30
Client ID: SB005-12.0
Sample Type: Client
Inject. Date: 08-Jul-2016 18:08:51 ALS Bottle#: 0 Worklist Smp#: 28
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85171-A-30-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 11-Jul-2016 11:13:57 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK031

First Level Reviewer: fiedlerh Date: 11-Jul-2016 11:13:29

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.285	4.219	0.066		25252367	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.336				ND			
298.9 > 98.9		5.336							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.875	5.809	0.066		20433067	10.0			
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.235				ND			
363.0 > 168.9		6.235							
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.310	6.244	0.066		2548167	9.46			
10 Perfluorohexane Sulfonate									
398.9 > 80.0		6.244				ND			
398.9 > 98.9		6.244							
16 Perfluorooctanoic acid									
413.0 > 368.9		6.584				ND			
413.0 > 169.0		6.584							
$ 14 13C8 PFOA									
421.0 > 375.9	6.660	6.593	0.067	1.001	26499734	10.6			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.650	6.593	0.057		30854261	10.0			
$ 18 13C8 PFOS									
506.9 > 80.0	6.932	6.865	0.067	1.000	5535369	9.29			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.932	6.866	0.066		9314621	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9		6.866				ND			
498.9 > 98.9		6.866							

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
20 Perfluorononanoic acid									
463.0 > 418.9		6.886				ND			
463.0 > 218.9		6.886							
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.952	6.895	0.057		24841912	10.0			
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.206	7.149	0.057		26852625	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.423	7.366	0.057		16819448	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.602	7.555	0.048		33722630	10.0			
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.633	7.614	0.019		27050342	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

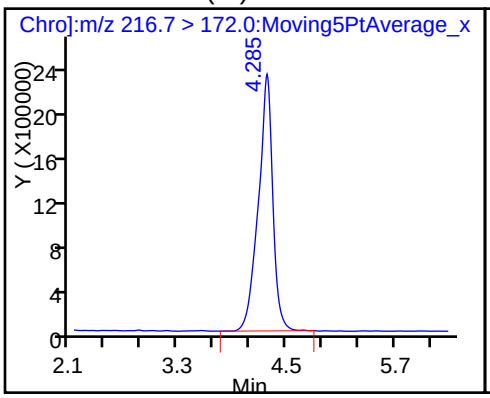
Report Date: 11-Jul-2016 11:14:00 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

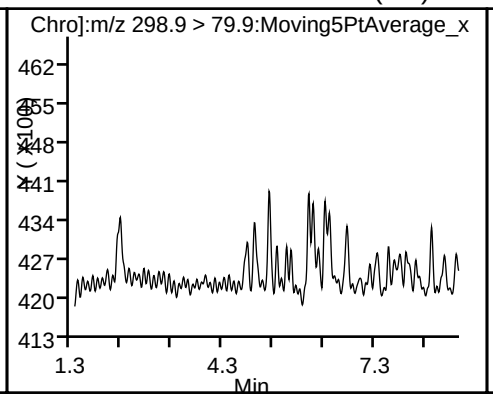
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08033.d

Injection Date:	08-Jul-2016 18:08:51	Instrument ID:	LC_LCMS5		
Lims ID:	280-85171-A-30-A	Lab Sample ID:	280-85171-30		
Client ID:	SB005-12.0				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	28
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

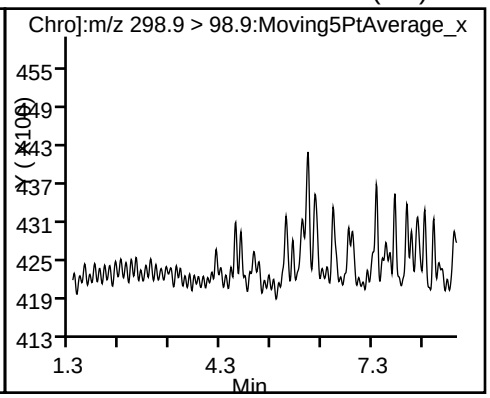
* 1 13C4 PFBA (IS)



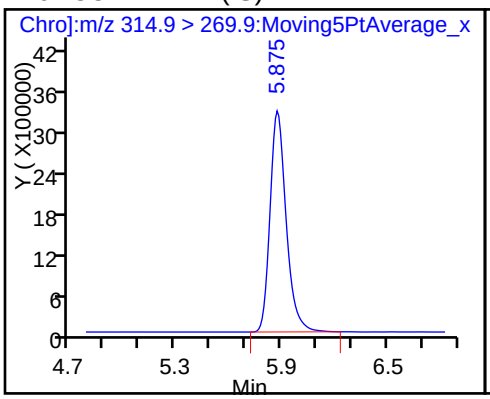
4 Perfluorobutane Sulfonate (ND)



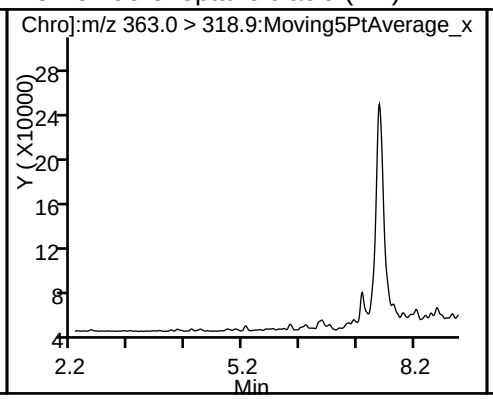
4 Perfluorobutane Sulfonate (ND)



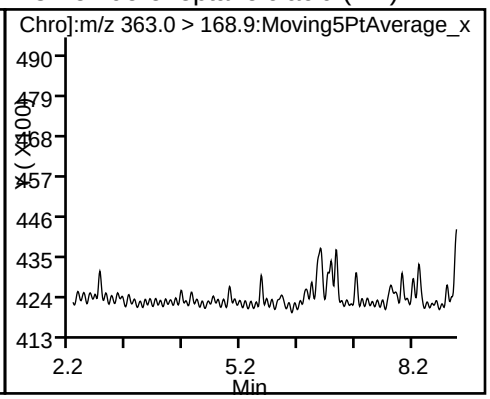
* 6 13C2 PFHxA (IS)



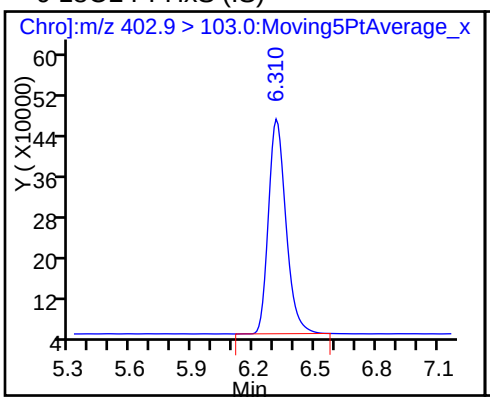
8 Perfluoroheptanoic acid (ND)



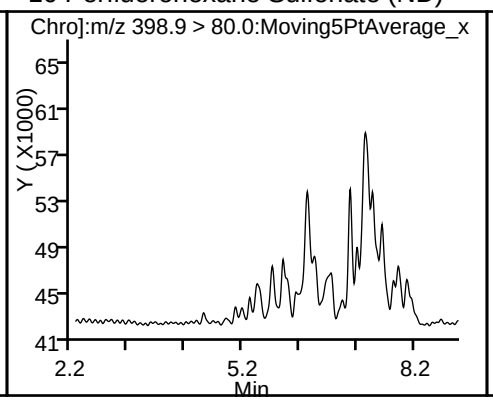
8 Perfluoroheptanoic acid (ND)



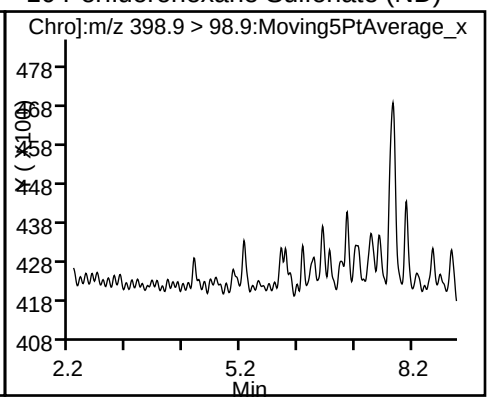
* 9 18O2 PFHxS (IS)



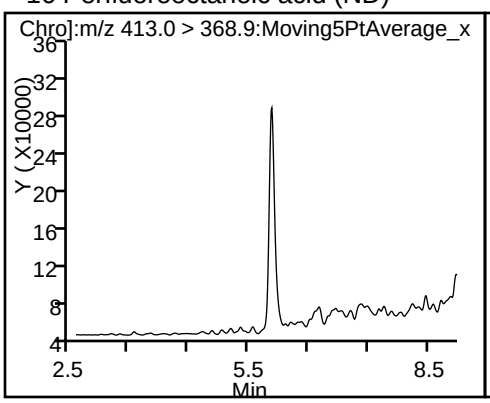
10 Perfluorohexane Sulfonate (ND)



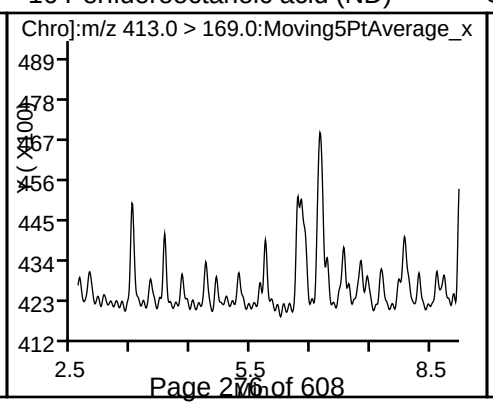
10 Perfluorohexane Sulfonate (ND)



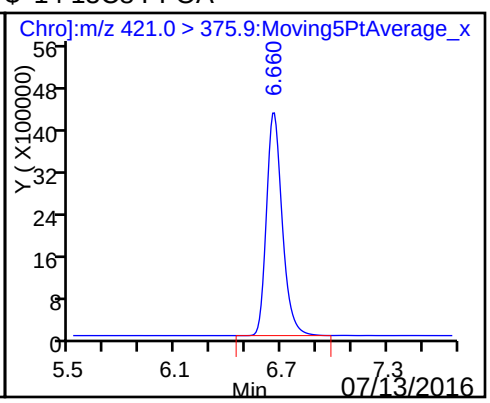
16 Perfluorooctanoic acid (ND)



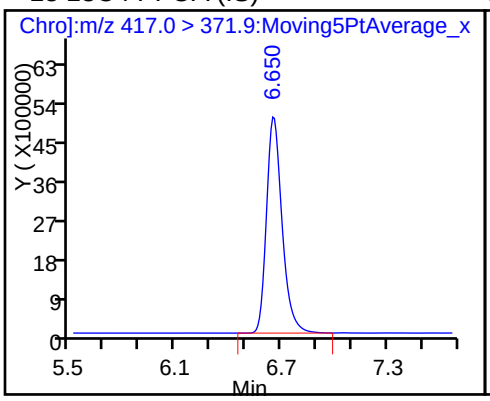
16 Perfluorooctanoic acid (ND)



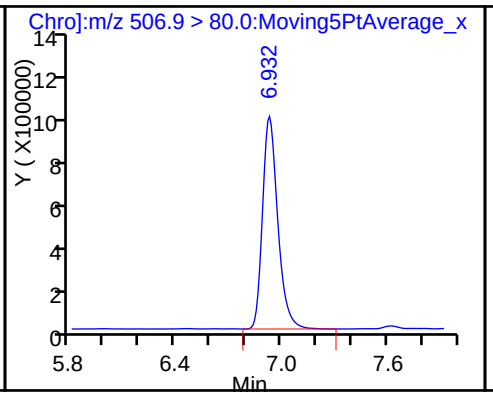
$ 14 13C8 PFOA



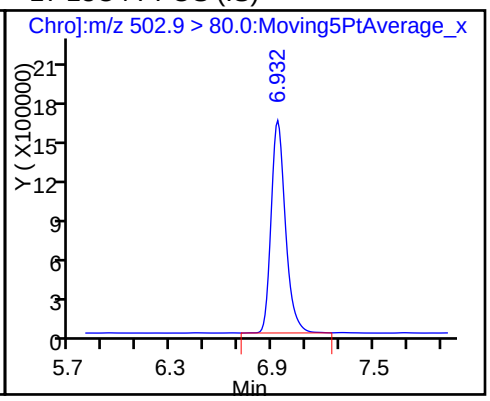
* 15 13C4 PFOA (IS)



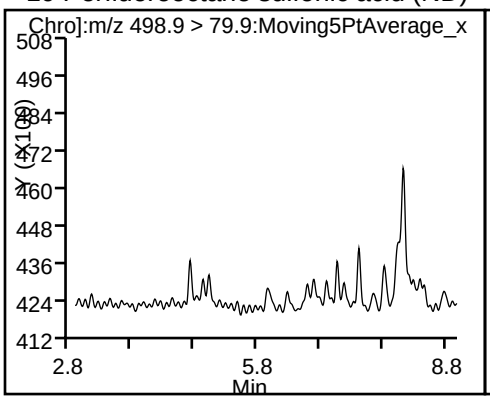
$ 18 13C8 PFOS



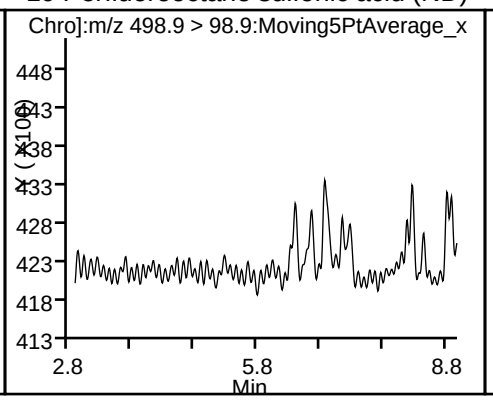
* 17 13C4 PFOS (IS)



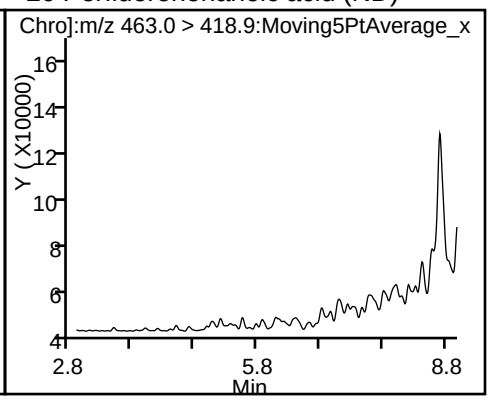
19 Perfluorooctane sulfonic acid (ND)



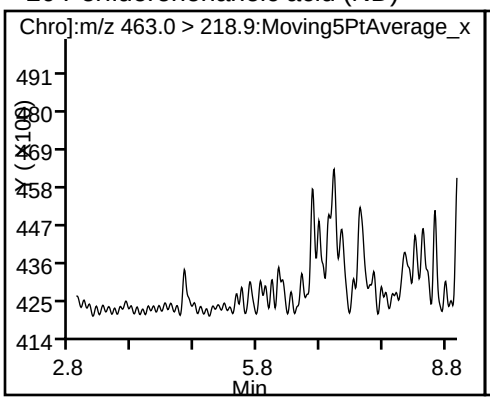
19 Perfluorooctane sulfonic acid (ND)



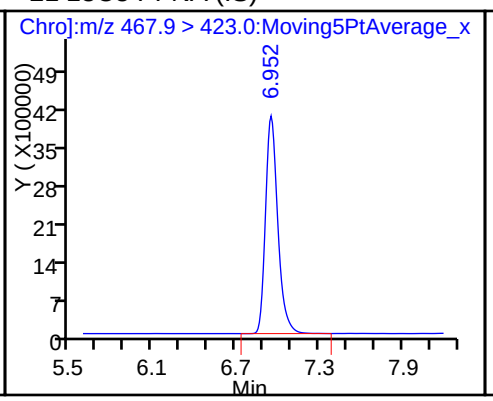
20 Perfluorononanoic acid (ND)



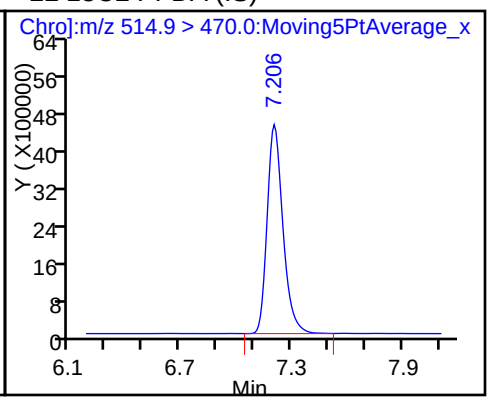
20 Perfluorononanoic acid (ND)



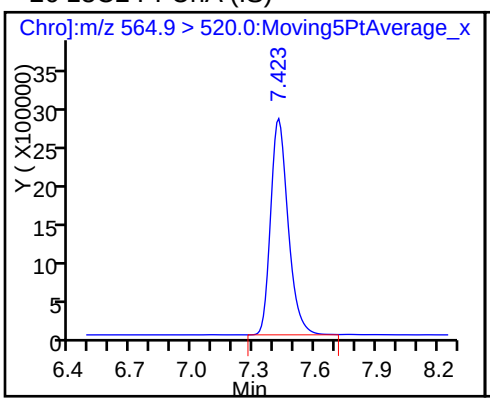
* 21 13C5 PFNA (IS)



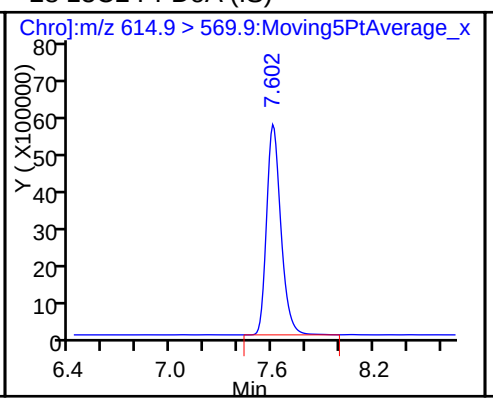
* 22 13C2 PFDA (IS)



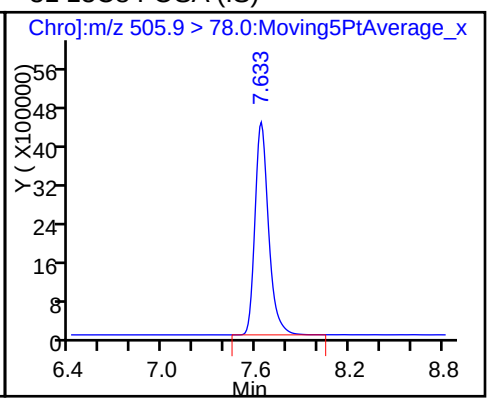
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Denver Job No.: 280-85171-1 Analy Batch No.: 328740

SDG No.:

Instrument ID: LC_LCMS5 GC Column: Gemini-NX ID: Heated Purge: (Y/N) N

Calibration Start Date: 06/06/2016 14:49 Calibration End Date: 06/06/2016 16:28 Calibration ID: 26146

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD0002 280-328740/3	PC516F06008.d
Level 2	STD0005 280-328740/4	PC516F06009.d
Level 3	STD0010 280-328740/5	PC516F06010.d
Level 4	STD0020 280-328740/6	PC516F06011.d
Level 5	STD0050 280-328740/7	PC516F06012.d
Level 6	STD0100 280-328740/8	PC516F06013.d
Level 7	STD0200 280-328740/9	PC516F06014.d
Level 8	STD0500 280-328740/10	PC516F06015.d
Level 9	STD1250 280-328740/11	PC516F06016.d

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5		B	M1	M2								
Perfluorobutanoic acid (PFBA)	1.0935 1.0731	0.9682 1.1168	1.1011 1.0889	1.0163 1.1259	1.0411	Lin2	-0.004	1.0730							0.9970		0.9800
Perfluoropentanoic acid (PFPA)	1.3959 1.2078	1.0565 1.2222	1.2095 1.2100	1.1322 1.1856	1.2067	Lin2	0.0300	1.1734							0.9950		0.9800
Perfluorobutane Sulfonate (PFBS)	5.1403 4.7868	4.9725 5.2449	5.0208 5.5169	4.6740 5.9824	5.2935	Lin2	-0.043	5.2289							0.9930		0.9800
Perfluorobutanesulfonic acid	5.1403 4.7868	4.9725 5.2449	5.0208 5.5169	4.6740 5.9824	5.2935	Lin2	-0.043	5.2289							0.9930		0.9800
Perfluorohexanoic acid (PFHxA)	1.0267 0.9482	1.0181 0.9452	0.9750 0.9241	1.0158 0.9118	0.9109	Lin2	0.0206	0.9436							0.9990		0.9800
Perfluoroheptanoic acid (PFHpA)	1.0268 0.9363	0.9027 0.9087	0.8648 0.8487	0.8655 0.8270	0.8797	Lin2	0.0290	0.8670							0.9980		0.9800
Perfluorohexane Sulfonate (PFHxS)	5.5961 3.6390	4.4606 4.0123	4.1902 3.7210	4.0834 3.8307	4.0848	Lin2	0.3295	3.8358							0.9990		0.9800
Perfluorohexanesulfonic acid	5.5961 3.6390	4.4606 4.0123	4.1902 3.7210	4.0834 3.8307	4.0848	Lin2	0.3295	3.8358							0.9990		0.9800
Perfluoroheptane Sulfonate	1.0469 1.2337	1.4301 1.1966	1.2370 1.2023	1.1876 1.0563	1.2143	Lin2	-0.012	1.2131							0.9900		0.9800
Perfluoroheptanesulfonic Acid (PFHpS)	1.0469 1.2337	1.4301 1.1966	1.2370 1.2023	1.1876 1.0563	1.2143	Lin2	-0.012	1.2131							0.9900		0.9800
Perfluorooctanoic acid (PFOA)	1.3260 1.0892	1.3937 1.0793	1.0859 0.9740	1.0522 0.9049	1.0619	Lin2	0.0742	1.0342							0.9890		0.9800
Perfluorooctanesulfonic acid (PFOS)	1.5676 1.2584	1.3596 1.1582	1.3732 1.1122	1.1887 0.9589	1.2720	Lin2	0.0841	1.1630							0.9910		0.9800
Perfluorononanoic acid (PFNA)	1.3972 1.1280	1.1487 1.1212	1.0990 1.1350	1.1535 1.1303	1.1718	Lin2	0.0488	1.1168							0.9980		0.9800

Note: The m1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Denver Job No.: 280-85171-1 Analy Batch No.: 328740

SDG No.:

Instrument ID: LC_LCMS5 GC Column: Gemini-NX ID: Heated Purge: (Y/N) N

Calibration Start Date: 06/06/2016 14:49 Calibration End Date: 06/06/2016 16:28 Calibration ID: 26146

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5		B	M1	M2								
Perfluorodecanoic acid (PFDA)	1.1899 1.0233	1.0247 0.9665	1.0818 1.0033	1.0008 0.9920	1.0636	Lin2	0.0350	1.0039							0.9990		0.9800
Perfluorodecane sulfonate (PFDS)	1.4838 1.2796	1.3630 1.2639	1.2150 1.2964	1.2209 1.1582	1.2487	Lin2	0.0481	1.2319							0.9980		0.9800
Perfluorodecane Sulfonic acid	1.4838 1.2796	1.3630 1.2639	1.2150 1.2964	1.2209 1.1582	1.2487	Lin2	0.0481	1.2319							0.9980		0.9800
Perfluoroundecanoic acid (PFUnA)	1.7146 1.4647	1.7101 1.3676	1.5648 1.3430	1.3951 1.3939	1.4002	Lin2	0.0750	1.4098							0.9960		0.9800
Perfluorododecanoic acid (PFDoA)	1.3017 1.0587	1.1956 1.0311	1.0672 0.9868	1.0267 1.0217	1.0324	Lin2	0.0595	1.0215							0.9990		0.9800
Perfluorooctane Sulfonamide (FOSA)	1.1447 1.0951	1.0906 1.0524	1.0905 1.0899	1.0591 1.1084	1.1227	Lin2	0.0103	1.0846							0.9990		0.9800
Perfluorotridecanoic Acid (PFTriA)	1.2872 0.9589	1.0900 0.9686	0.9993 0.8414	0.9813 0.8847	0.9590	Lin2	0.0751	0.9227							0.9980		0.9800
Perfluorotetradecanoic acid (PFTeA)	0.6533 0.5880	0.5308 0.6377	0.5451 0.6135	0.5482 0.6668	0.5681	Lin2	0.0042	0.5905							0.9910		0.9800
13C8 PFOA	0.9499 0.8392	0.9381 0.7496	0.9704 0.7015	0.8844 0.6647	0.8995	Lin2	0.0401	0.8046							0.9840		0.9800
13C8 PFOS	0.6559 0.6428	0.7415 0.5602	0.6905 0.5481	0.6966 0.4724	0.6607	Lin2	0.0199	0.6093							0.9800		0.9800

Note: The m1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Denver Job No.: 280-85171-1 Analy Batch No.: 328740

SDG No.:

Instrument ID: LC_LCMS5 GC Column: Gemini-NX ID: Heated Purge: (Y/N) N

Calibration Start Date: 06/06/2016 14:49 Calibration End Date: 06/06/2016 16:28 Calibration ID: 26146

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD0002 280-328740/3	PC516F06008.d
Level 2	STD0005 280-328740/4	PC516F06009.d
Level 3	STD0010 280-328740/5	PC516F06010.d
Level 4	STD0020 280-328740/6	PC516F06011.d
Level 5	STD0050 280-328740/7	PC516F06012.d
Level 6	STD0100 280-328740/8	PC516F06013.d
Level 7	STD0200 280-328740/9	PC516F06014.d
Level 8	STD0500 280-328740/10	PC516F06015.d
Level 9	STD1250 280-328740/11	PC516F06016.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5
Perfluorobutanoic acid (PFBA)	BA	Lin2	595154 30314584	1295896 64808389	3038727 157344591	5302668 394160471	15646483	0.200 10.0	0.500 20.0	1.00 50.0	2.00 125	5.00
Perfluoropentanoic acid (PFPA)	HXA	Lin2	684905 26550357	1319121 52945593	2769987 120508960	5174660 255912628	14121680	0.200 10.0	0.500 20.0	1.00 50.0	2.00 125	5.00
Perfluorobutane Sulfonate (PFBS)	HXS	Lin2	250069 10998014	623522 21952626	1117801 52661159	2150148 113831493	5710734	0.177 8.85	0.443 17.7	0.885 44.3	1.77 111	4.43
Perfluorobutanesulfonic acid	HXS	Lin2	250069 10998014	623522 21952626	1117801 52661159	2150148 113831493	5710734	0.177 8.85	0.443 17.7	0.885 44.3	1.77 111	4.43
Perfluorohexanoic acid (PFHxA)	HXA	Lin2	503746 20841959	1271251 40945931	2232965 92031312	4642778 196806552	10659437	0.200 10.0	0.500 20.0	1.00 50.0	2.00 125	5.00
Perfluoroheptanoic acid (PFHpA)	OA	Lin2	696517 27517800	1648753 50554239	2810806 102889489	5744336 201805611	14292973	0.200 10.0	0.500 20.0	1.00 50.0	2.00 125	5.00
Perfluorohexane Sulfonate (PFHxS)	HXS	Lin2	290699 8927761	597251 17932033	996121 37926174	2005825 77830813	4705477	0.189 9.45	0.473 18.9	0.945 47.3	1.89 118	4.73
Perfluorohexanesulfonic acid	HXS	Lin2	290699 8927761	597251 17932033	996121 37926174	2005825 77830813	4705477	0.189 9.45	0.473 18.9	0.945 47.3	1.89 118	4.73
Perfluoroheptane Sulfonate	PFOS	Lin2	193401 10232509	677069 20264466	1051810 43315154	2150073 81786282	5403580	0.190 9.52	0.476 19.0	0.952 47.6	1.90 119	4.76
Perfluoroheptanesulfonic Acid (PFHpS)	PFOS	Lin2	193401 10232509	677069 20264466	1051810 43315154	2150073 81786282	5403580	0.190 9.52	0.476 19.0	0.952 47.6	1.90 119	4.76
Perfluorooctanoic acid (PFOA)	OA	Lin2	899444 32009782	2545486 60046068	3529270 118077119	6983614 220819164	17252348	0.200 10.0	0.500 20.0	1.00 50.0	2.00 125	5.00
Perfluorooctanesulfonic acid (PFOS)	PFOS	Lin2	290513 10470143	645716 19674973	1171224 40197453	2158847 74481235	5678428	0.191 9.55	0.478 19.1	0.955 47.8	1.91 119	4.78
Perfluorononanoic acid (PFNA)	NA	Lin2	740676 25021117	1587923 43845776	2681286 90947910	5817495 168854641	14058059	0.200 10.0	0.500 20.0	1.00 50.0	2.00 125	5.00
Perfluorodecanoic acid (PFDA)	DA	Lin2	647522 25238466	1445379 48421431	2800062 109010928	5187930 219177035	13455719	0.200 10.0	0.500 20.0	1.00 50.0	2.00 125	5.00

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Denver Job No.: 280-85171-1 Analy Batch No.: 328740

SDG No.:

Instrument ID: LC_LCMS5 GC Column: Gemini-NX ID: Heated Purge: (Y/N) N

Calibration Start Date: 06/06/2016 14:49 Calibration End Date: 06/06/2016 16:28 Calibration ID: 26146

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5
Perfluorodecane sulfonate (PFDS)	PFOS	Lin2	277874 10758635	654135 21695661	1047130 47343835	2240490 90907790	5632521	0.193 9.65	0.483 19.3	0.965 48.3	1.93 121	4.83
Perfluorodecane Sulfonic acid	PFOS	Lin2	277874 10758635	654135 21695661	1047130 47343835	2240490 90907790	5632521	0.193 9.65	0.483 19.3	0.965 48.3	1.93 121	4.83
Perfluoroundecanoic acid (PFUnA)	UNA	Lin2	588700 21285381	1566038 39180966	2540060 77899378	4772902 154032440	11414147	0.200 10.0	0.500 20.0	1.00 50.0	2.00 125	5.00
Perfluorododecanoic acid (PFDoA)	DOA	Lin2	915560 33735988	2159339 63246783	3492545 142077526	6822134 293807930	17657166	0.200 10.0	0.500 20.0	1.00 50.0	2.00 125	5.00
Perfluorooctane Sulfonamide (FOSA)	FOSA	Lin2	590186 26107207	1495146 51602388	2697496 117575149	5393596 250150013	13895071	0.200 10.0	0.500 20.0	1.00 50.0	2.00 125	5.00
Perfluorotridecanoic Acid (PFTriA)	DOA	Lin2	905331 30556604	1968702 59415459	3270152 121132497	6520781 254423900	16402113	0.200 10.0	0.500 20.0	1.00 50.0	2.00 125	5.00
Perfluorotetradecanoic acid (PFTeA)	DOA	Lin2	459487 18737310	958729 39118116	1783816 88331768	3642443 191754560	9715521	0.200 10.0	0.500 20.0	1.00 50.0	2.00 125	5.00
13C8 PFOA	OA	Lin2	644366 24662701	1713329 41702455	3153884 85046612	5869974 162199054	14613722	0.200 10.0	0.500 20.0	1.00 50.0	2.00 125	5.00
13C8 PFOS	PFOS	Lin2	121681 5353658	352518 9525828	589580 19830288	1266475 36728856	2952684	0.191 9.56	0.478 19.1	0.956 47.8	1.91 120	4.78

Curve Type Legend:
Lin2 = Linear 1/conc^2 ISTD

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06008.d
Lims ID: STD0002
Client ID:
Sample Type: IC Calib Level: 1
Inject. Date: 06-Jun-2016 14:49:59 ALS Bottle#: 0 Worklist Smp#: 3
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: STD 0002, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 07-Jun-2016 14:08:32 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK003

First Level Reviewer: meyera Date: 07-Jun-2016 13:00:17

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.446	4.020	0.426		27213757	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	3.982	4.020	-0.038	0.896	595154	0.2072			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.355	5.100	0.255	0.910	684905	0.2124			
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.450	5.222	0.228	0.865	250069	0.1822			
298.9 > 98.9	5.459	5.222	0.237	0.866	81289		3.08(2.57-2.57)		
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.450	5.222	0.228	0.865	250069	0.1822			
298.9 > 98.9	5.459	5.222	0.237	0.866	81289		3.08(1.80-3.35)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.885	5.695	0.190		24532160	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.894	5.686	0.208	1.002	503746	0.1957			
313.0 > 118.6	5.923	5.686	0.237	1.006	10193		49.42(34.05-63.23)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.292	6.121	0.171	0.949	696517	0.2034			
363.0 > 168.9	6.292	6.121	0.171	0.949	191107		3.64(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.300	6.130	0.170		2600098	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.301	6.130	0.171	1.000	290699	0.1898			R
398.9 > 98.9	6.291	6.130	0.161	0.999	100556		2.89(1.30-2.41)		
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.301	6.130	0.171	1.000	290699	0.1898			
398.9 > 98.9	6.291	6.130	0.161	0.999	100556		2.89(1.85-1.85)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.621	6.460	0.161	0.959	193401	0.1743			
449.0 > 98.9	6.621	6.460	0.161	0.959	76248		2.54(0.00-0.00)		
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.621	6.460	0.161	0.959	193401	0.1743			
449.0 > 98.9	6.621	6.460	0.161	0.959	76248		2.54(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.631	6.470	0.161	1.000	644366	0.1863			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.631	6.470	0.161		33916758	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.632	6.471	0.161	1.000	899444	0.1846			
413.0 > 169.0	6.632	6.471	0.161	1.000	303395		2.96(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.894	6.742	0.152	0.999	121681	0.1731			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.904	6.743	0.161		9276020	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.904	6.743	0.161	1.000	290513	0.1852			R
498.9 > 98.9	6.885	6.743	0.142	0.997	81976		3.54(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.914	6.753	0.161		26504778	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.924	6.753	0.171	1.001	740676	0.2065			
463.0 > 218.9	6.905	6.753	0.152	0.999	111132		6.66(5.59-10.38)		
23 Perfluorodecanoic acid									R
513.0 > 468.9	7.159	6.998	0.161	1.000	647522	0.2022			R
513.0 > 219.0	7.159	6.998	0.161	1.000	83452		7.76(10.49-19.48)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.158	7.007	0.151		27209809	10.0			
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.347	7.186	0.161	1.064	277874	0.1934			
598.9 > 99.0	7.356	7.186	0.170	1.066	72213		3.85(2.84-2.84)		
25 Perfluorodecane Sulfonate									R
598.9 > 79.9	7.347	7.186	0.161	1.064	277874	0.1934			R
598.9 > 99.0	7.356	7.186	0.170	1.066	72213		3.85(1.99-3.69)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.366	7.215	0.151		17167663	10.0			
27 Perfluoroundecanoic acid									
563.0 > 518.9	7.366	7.215	0.151	1.000	588700	0.1901			
563.0 > 268.9	7.366	7.215	0.151	1.000	96854		6.08(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.545	7.393	0.152		35167056	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.545	7.394	0.151	1.000	915560	0.1966			
613.0 > 168.9	7.545	7.394	0.151	1.000	122464		7.48(5.96-11.06)		
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.696	7.545	0.151	1.020	905331	0.1977			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.642	7.529	0.113		25779733	10.0			
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.643	7.530	0.113	1.000	590186	0.2016			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.829	7.677	0.152	1.038	459487	0.2142			
712.9 > 169.0	7.829	7.677	0.152	1.038	71115		6.46(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Reagents:

PFC_CAL_stock_00033	Amount Added: 10.00	Units: uL
PFC-IS_00021	Amount Added: 20.00	Units: uL

Report Date: 07-Jun-2016 14:08:33 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06008.d

Injection Date: 06-Jun-2016 14:49:59 Instrument ID: LC_LCMS5

Lims ID: STD0002

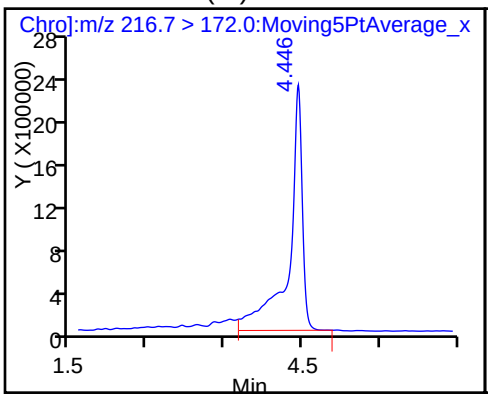
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 3

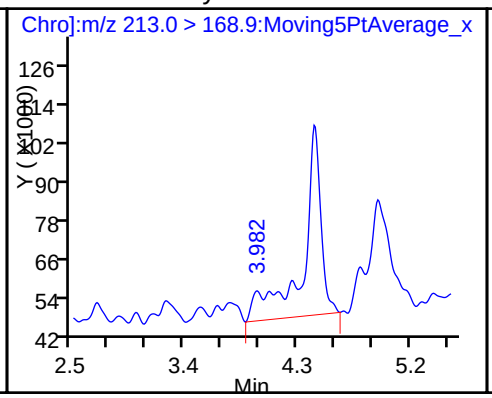
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

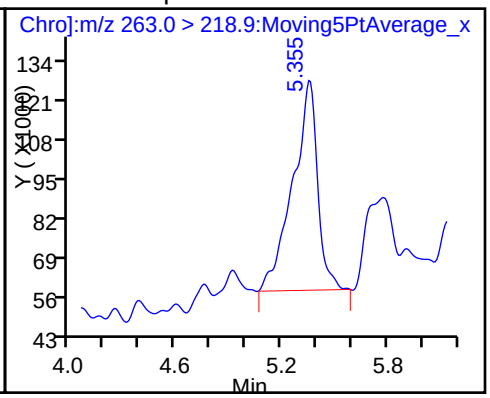
* 1 13C4 PFBA (IS)



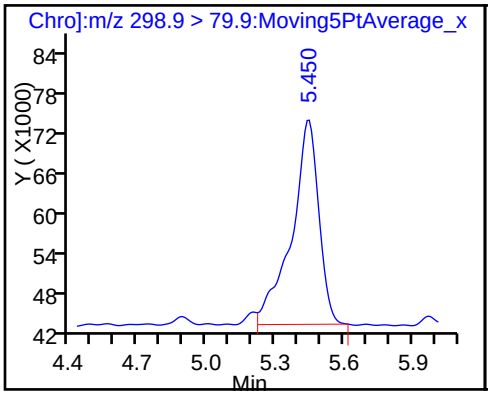
2 Perfluorobutyric acid



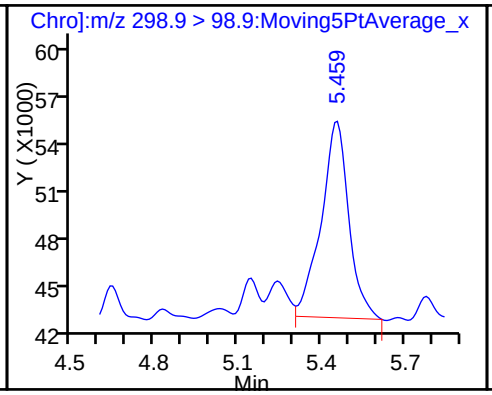
3 Perfluoropentanoic acid



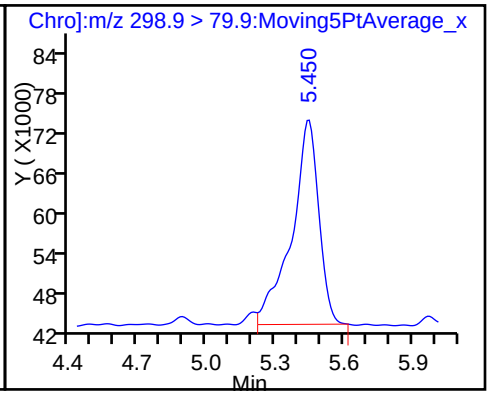
5 Perfluorobutanesulfonic acid



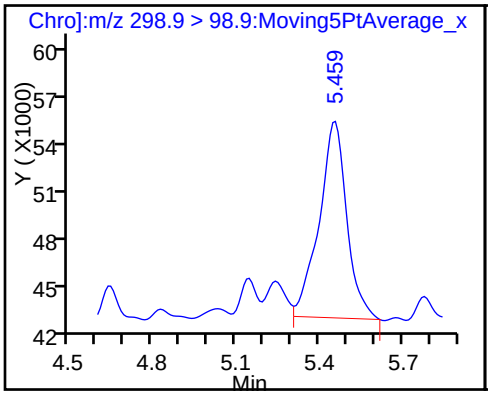
5 Perfluorobutanesulfonic acid



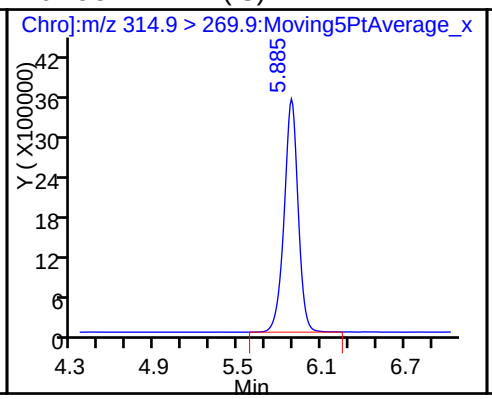
4 Perfluorobutane Sulfonate



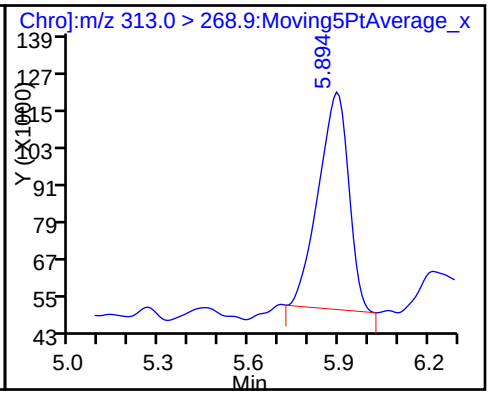
4 Perfluorobutane Sulfonate



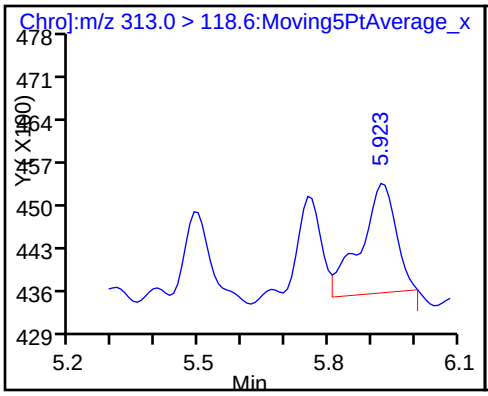
* 6 13C2 PFHxA (IS)



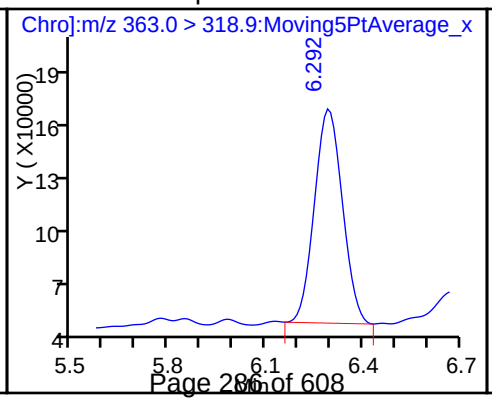
7 Perfluorohexanoic acid



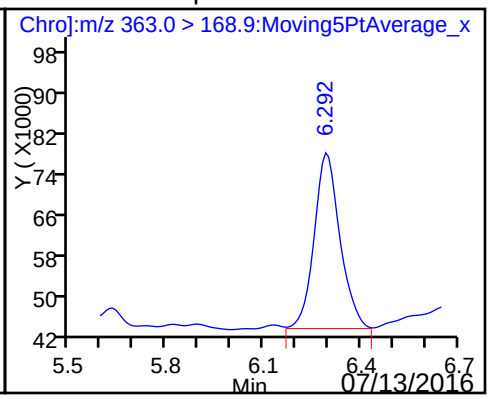
7 Perfluorohexanoic acid



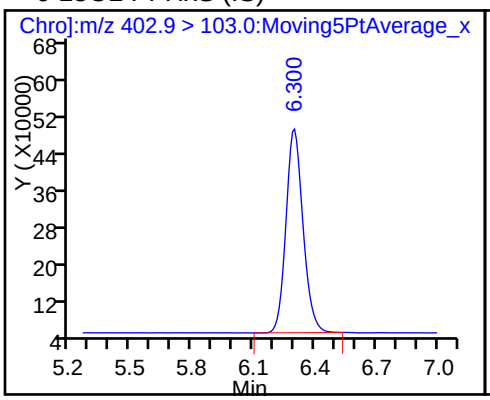
8 Perfluoroheptanoic acid



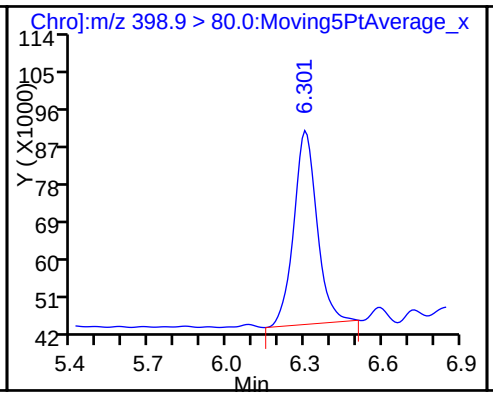
8 Perfluoroheptanoic acid



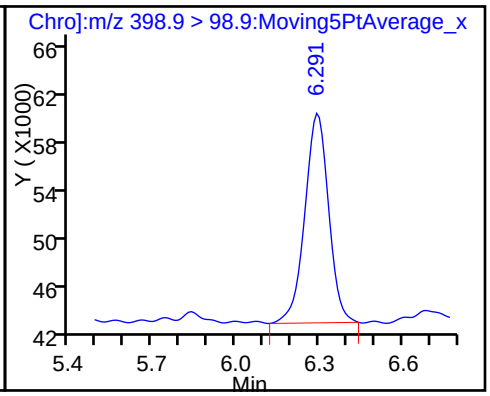
* 9 18O2 PFHxS (IS)



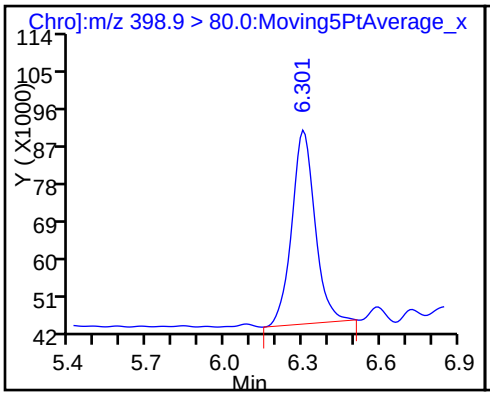
10 Perfluorohexane Sulfonate



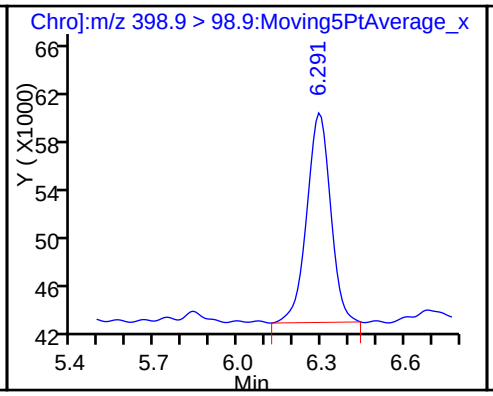
10 Perfluorohexane Sulfonate



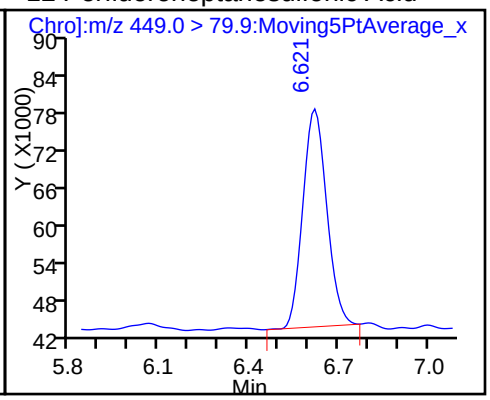
11 Perfluorohexanesulfonic acid



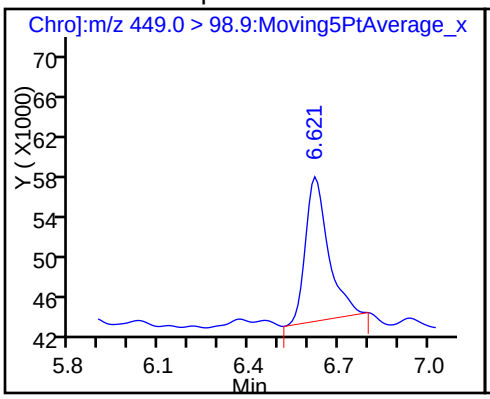
11 Perfluorohexanesulfonic acid



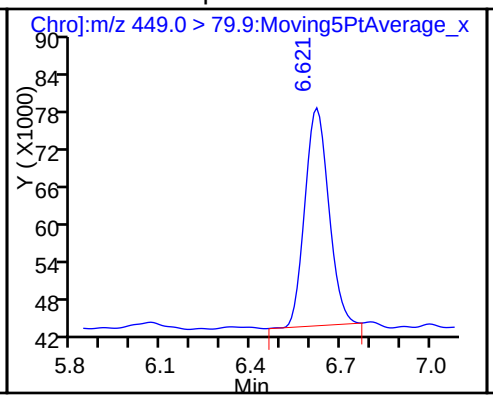
12 Perfluoroheptanesulfonic Acid



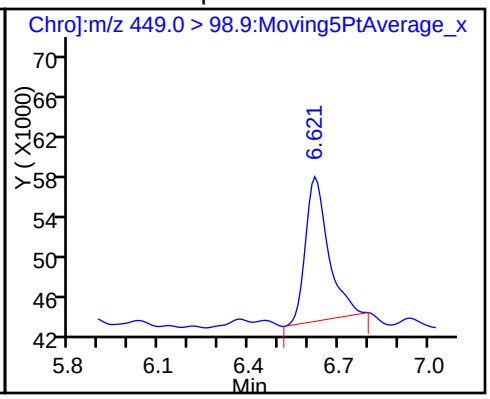
12 Perfluoroheptanesulfonic Acid



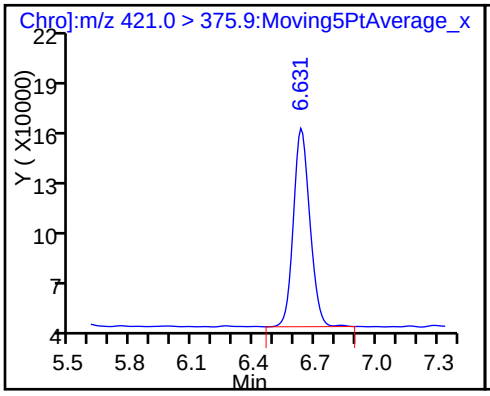
13 Perfluoroheptane Sulfonate



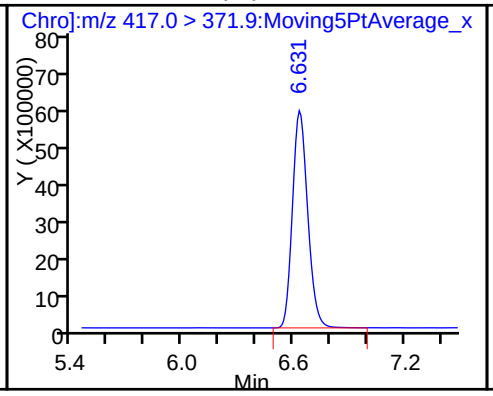
13 Perfluoroheptane Sulfonate



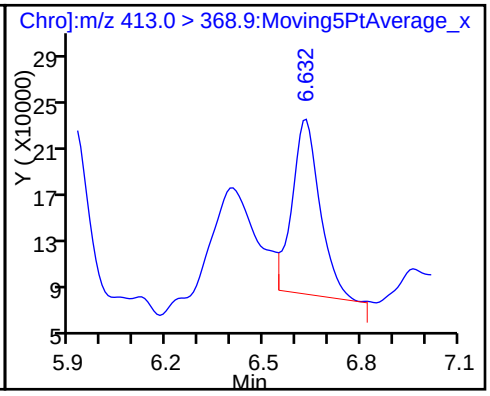
$ 14 13C8 PFOA



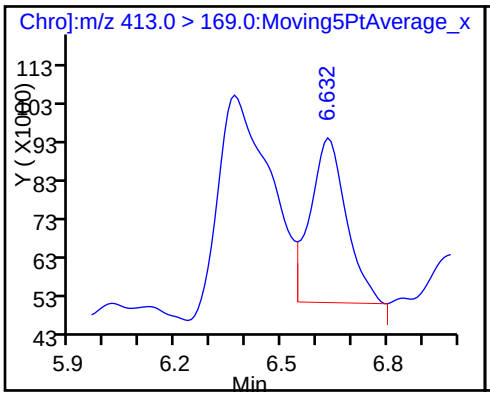
* 15 13C4 PFOA (IS)



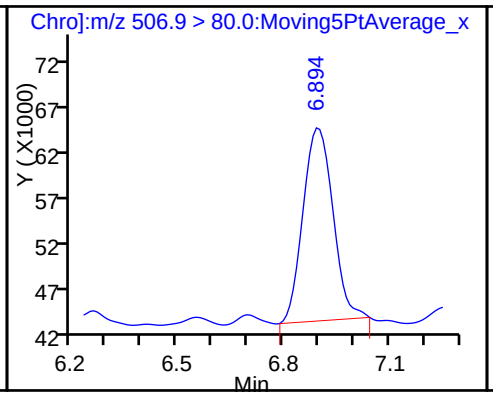
16 Perfluorooctanoic acid



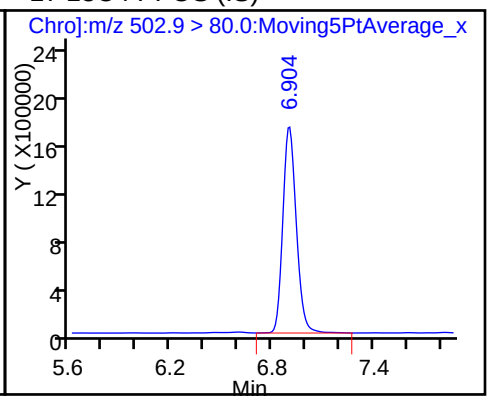
16 Perfluorooctanoic acid



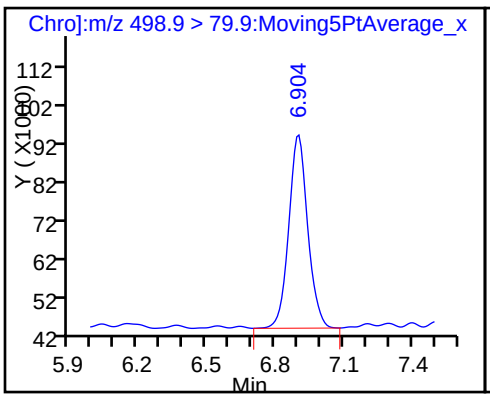
$ 18 13C8 PFOS



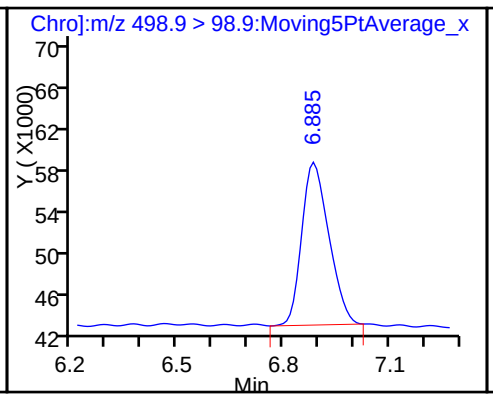
* 17 13C4 PFOS (IS)



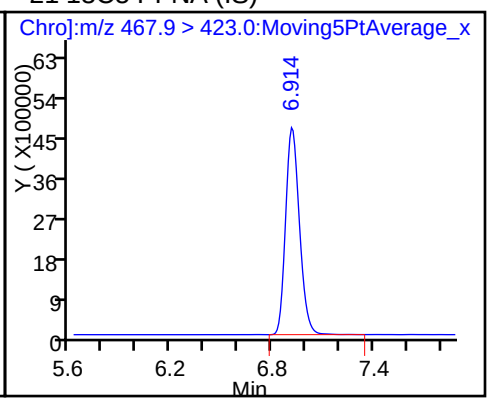
19 Perfluorooctane sulfonic acid



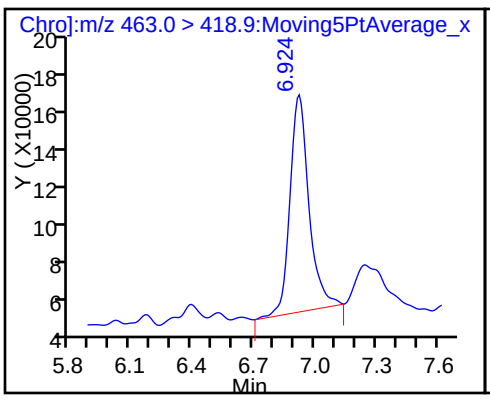
19 Perfluorooctane sulfonic acid



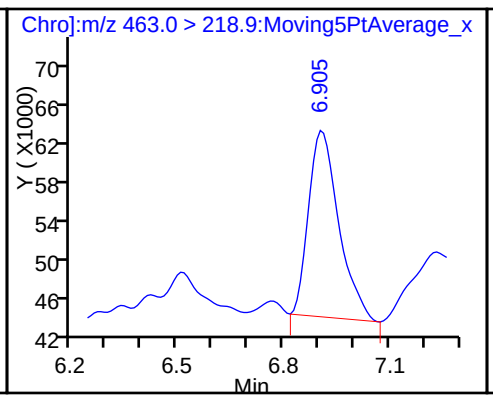
* 21 13C5 PFNA (IS)



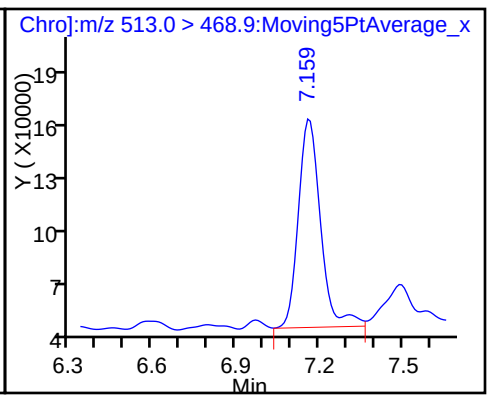
20 Perfluorononanoic acid



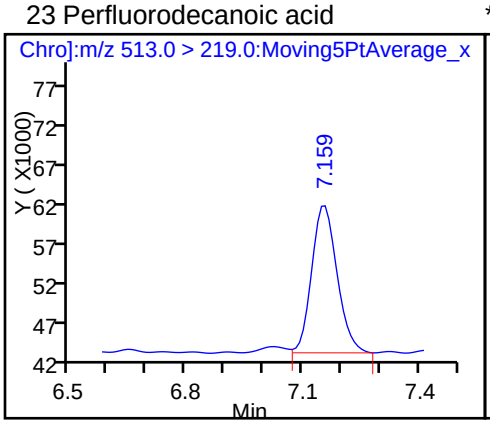
20 Perfluorononanoic acid



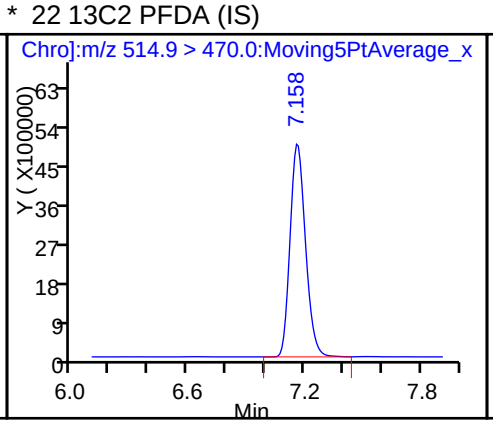
23 Perfluorodecanoic acid



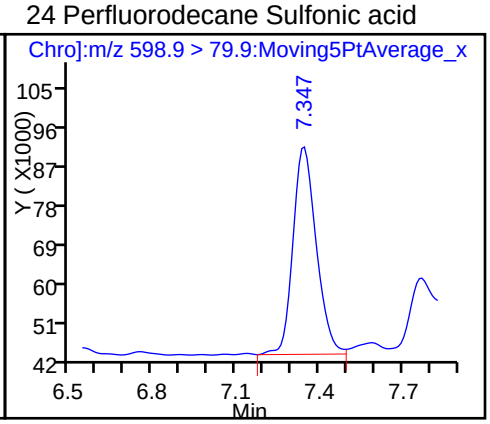
23 Perfluorodecanoic acid



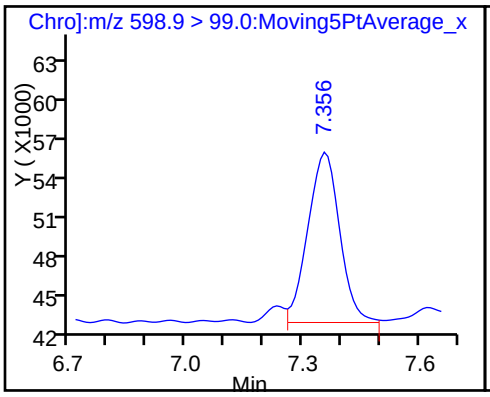
* 22 13C2 PFDA (IS)



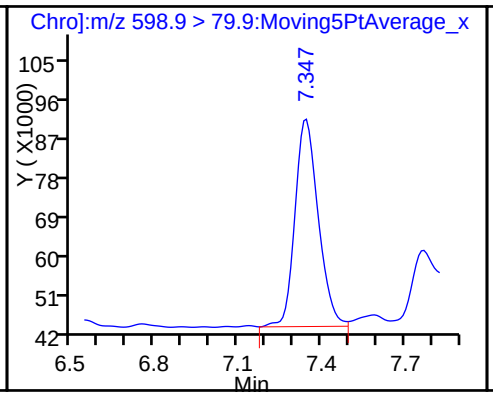
24 Perfluorodecane Sulfonic acid



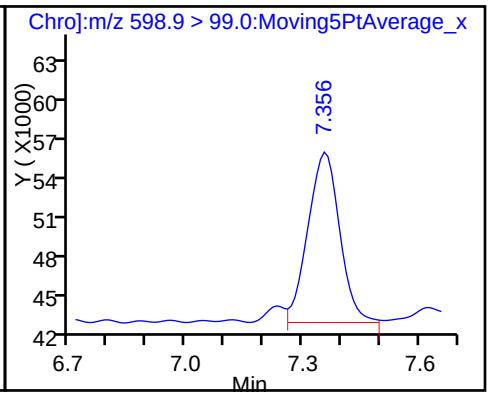
24 Perfluorodecane Sulfonic acid



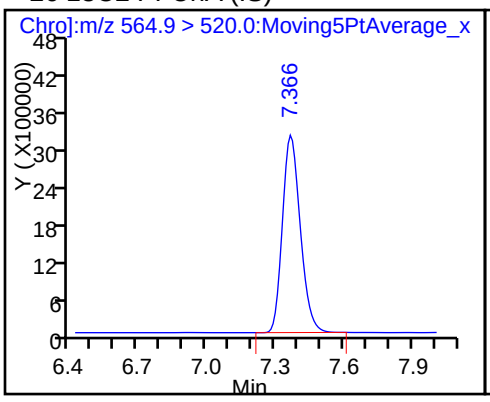
25 Perfluorodecane Sulfonate



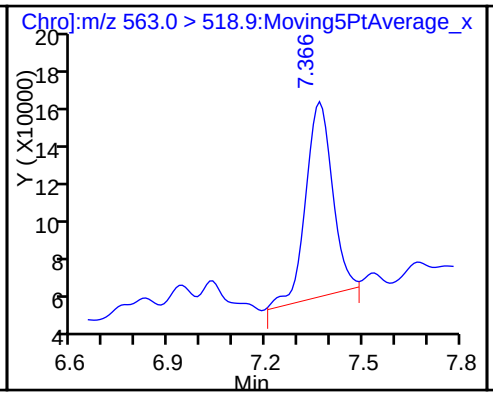
25 Perfluorodecane Sulfonate



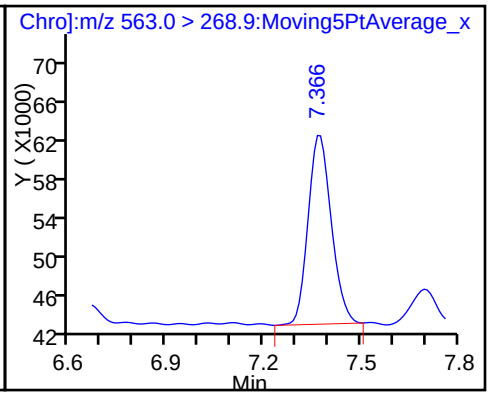
* 26 13C2 PFUnA (IS)



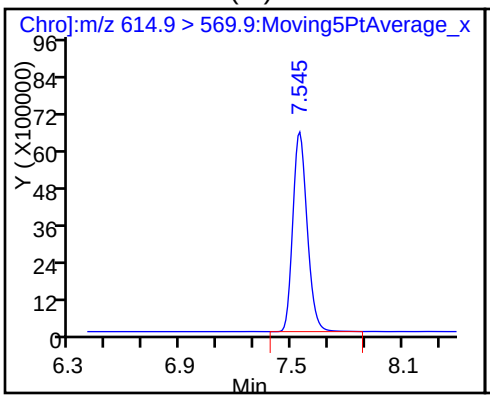
27 Perfluoroundecanoic acid



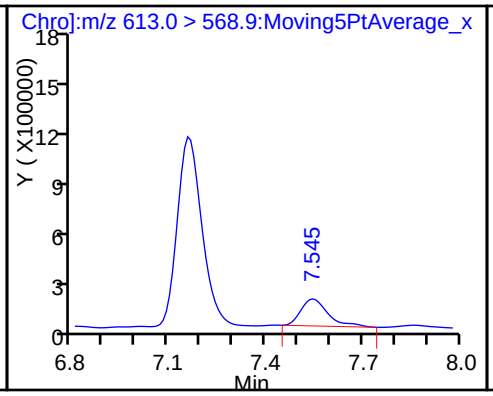
27 Perfluoroundecanoic acid



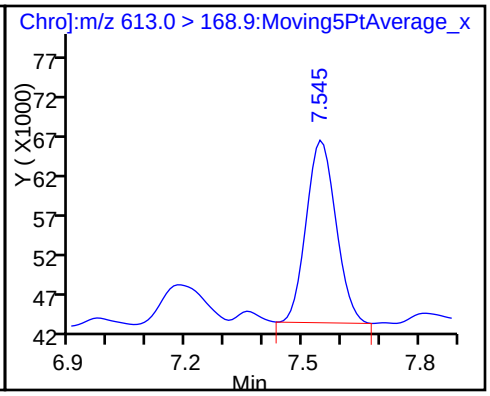
* 28 13C2 PFDoA (IS)



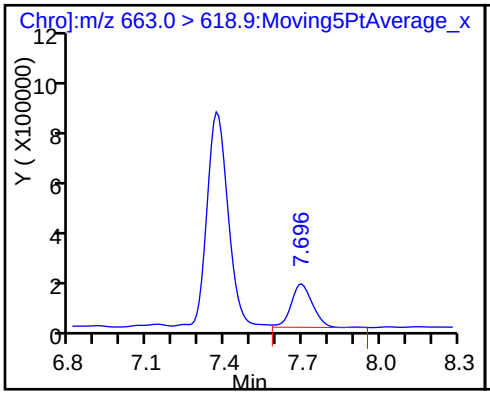
29 Perfluorododecanoic acid



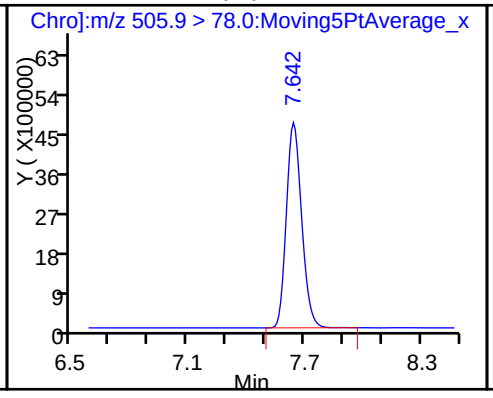
29 Perfluorododecanoic acid



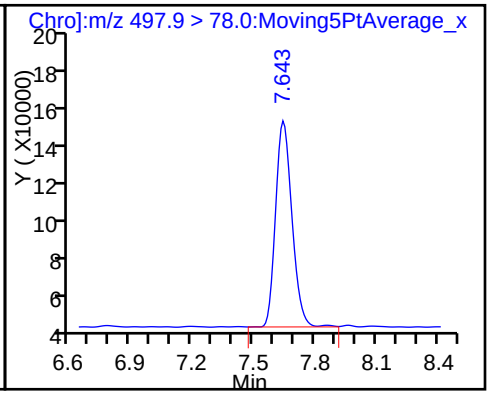
30 Perfluorotridecanoic acid



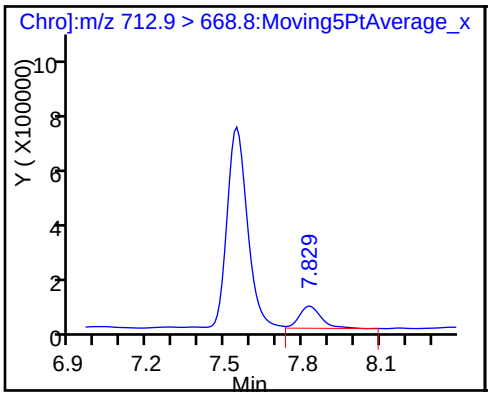
* 31 13C8 FOSA (IS)



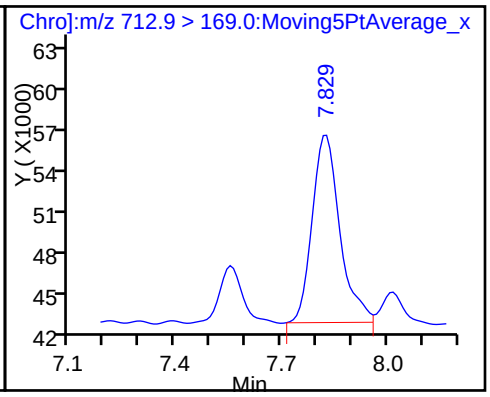
32 Perfluorooctane Sulfonamide



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06009.d
Lims ID: STD0005
Client ID:
Sample Type: IC Calib Level: 2
Inject. Date: 06-Jun-2016 15:02:17 ALS Bottle#: 0 Worklist Smp#: 4
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: STD 0005, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 07-Jun-2016 14:08:40 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK003

First Level Reviewer: meyera Date: 07-Jun-2016 12:59:51

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.172	4.020	0.152		26769557	10.0			
2 Perfluorobutyric acid									M
213.0 > 168.9	4.172	4.020	0.152	1.000	1295896	0.4546			M
3 Perfluoropentanoic acid									
263.0 > 218.9	5.242	5.100	0.142	0.899	1319121	0.4247			
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.355	5.222	0.133	0.855	623522	0.4290			
298.9 > 98.9	5.364	5.222	0.142	0.857	199278		3.13(2.57-2.57)		
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.355	5.222	0.133	0.855	623522	0.4290			
298.9 > 98.9	5.364	5.222	0.142	0.857	199278		3.13(1.80-3.35)		
7 Perfluorohexanoic acid									
313.0 > 268.9	5.828	5.686	0.142	1.000	1271251	0.5176			
313.0 > 118.6	5.819	5.686	0.133	0.998	31432		40.44(34.05-63.23)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.828	5.695	0.133		24971837	10.0			
8 Perfluoroheptanoic acid									R
363.0 > 318.9	6.254	6.121	0.133	0.947	1648753	0.4872			R
363.0 > 168.9	6.263	6.121	0.142	0.949	498178		3.31(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.263	6.130	0.133		2680752	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.263	6.130	0.133	1.000	597251	0.4636			R
398.9 > 98.9	6.272	6.130	0.142	1.002	202471		2.95(1.30-2.41)		
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.263	6.130	0.133	1.000	597251	0.4636			
398.9 > 98.9	6.272	6.130	0.142	1.002	202471		2.95(1.85-1.85)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.593	6.460	0.133	0.959	677069	0.5711			
449.0 > 98.9	6.593	6.460	0.133	0.959	152739		4.43(0.00-0.00)		
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.593	6.460	0.133	0.959	677069	0.5711			
449.0 > 98.9	6.593	6.460	0.133	0.959	152739		4.43(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.603	6.470	0.133	1.000	1713329	0.5331			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.603	6.470	0.133		36529272	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.603	6.471	0.132	1.000	2545486	0.6020			
413.0 > 169.0	6.613	6.471	0.142	1.001	723773		3.52(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.875	6.742	0.133	1.000	352518	0.5490			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.875	6.743	0.132		9508598	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.876	6.743	0.133	1.000	645716	0.4859			R
498.9 > 98.9	6.876	6.743	0.133	1.000	212089		3.04(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.895	6.753	0.142		27647688	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.895	6.753	0.142	1.000	1587923	0.4706			
463.0 > 218.9	6.895	6.753	0.142	1.000	280755		5.66(5.59-10.38)		
23 Perfluorodecanoic acid									R
513.0 > 468.9	7.140	6.998	0.142	1.000	1445379	0.4755			R
513.0 > 219.0	7.130	6.998	0.132	0.999	198159		7.29(10.49-19.48)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.140	7.007	0.133		28209499	10.0			
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.318	7.186	0.132	1.064	654135	0.4948			
598.9 > 99.0	7.318	7.186	0.132	1.064	165840		3.94(2.84-2.84)		
25 Perfluorodecane Sulfonate									R
598.9 > 79.9	7.318	7.186	0.132	1.064	654135	0.4948			R
598.9 > 99.0	7.318	7.186	0.132	1.064	165840		3.94(1.99-3.69)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.338	7.215	0.123		18315536	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.338	7.215	0.123	1.000	1566038	0.5533			R
563.0 > 268.9	7.347	7.215	0.132	1.001	163382		9.59(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.517	7.393	0.124		36122892	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.517	7.394	0.123	1.000	2159339	0.5269			
613.0 > 168.9	7.517	7.394	0.123	1.000	311344		6.94(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.614	7.529	0.085		27418934	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.615	7.530	0.085	1.000	1495146	0.4932			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.668	7.545	0.123	1.020	1968702	0.5093			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.800	7.677	0.123	1.038	958729	0.4424			
712.9 > 169.0	7.800	7.677	0.123	1.038	162064		5.92(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Review Flags

M - Manually Integrated

Reagents:

PFC_CAL_stock_00033	Amount Added:	25.00	Units: uL
PFC-IS_00021	Amount Added:	20.00	Units: uL

Report Date: 07-Jun-2016 14:08:40 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06009.d

Injection Date: 06-Jun-2016 15:02:17 Instrument ID: LC_LCMS5

Lims ID: STD0005

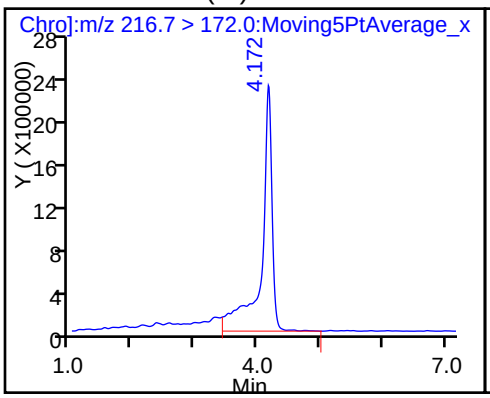
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 4

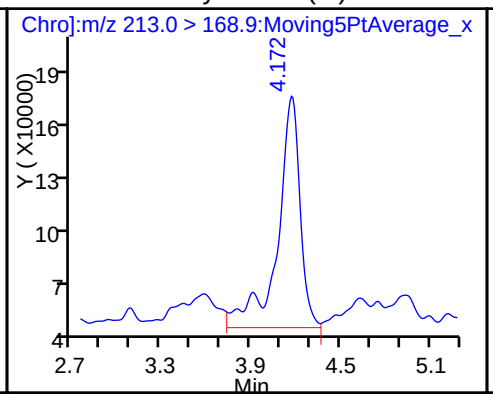
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

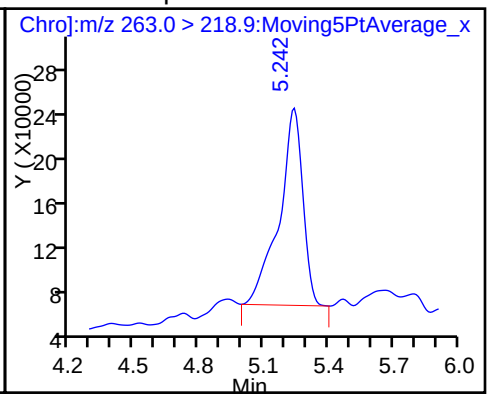
* 1 13C4 PFBA (IS)



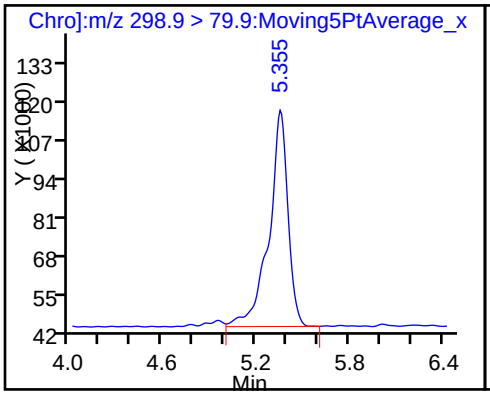
2 Perfluorobutyric acid (M)



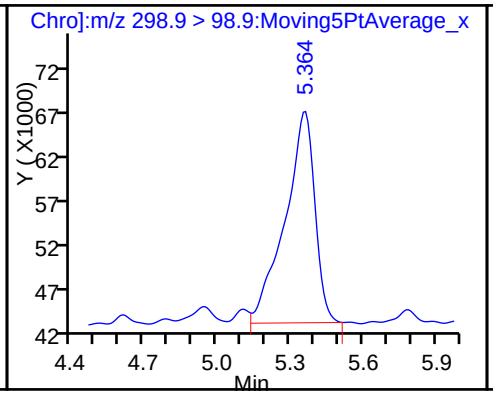
3 Perfluoropentanoic acid



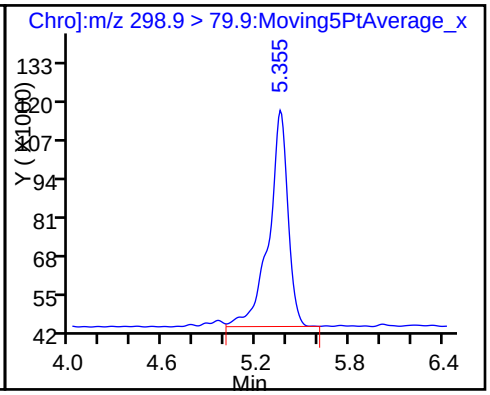
5 Perfluorobutanesulfonic acid



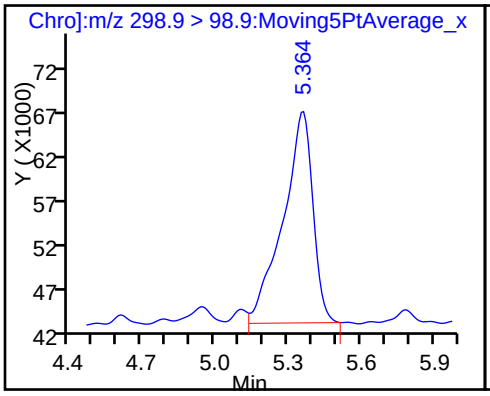
5 Perfluorobutanesulfonic acid



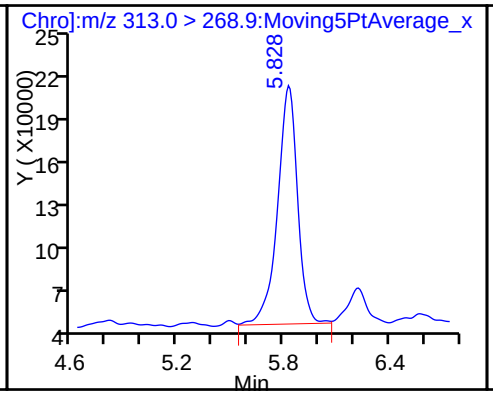
4 Perfluorobutane Sulfonate



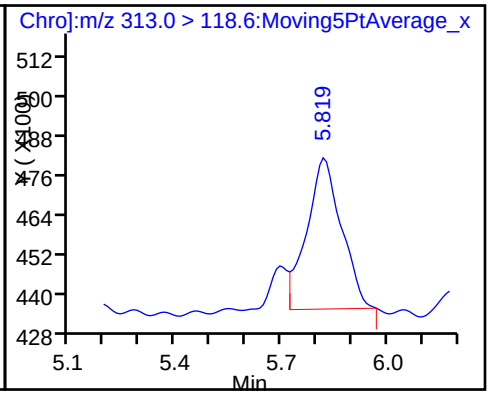
4 Perfluorobutane Sulfonate



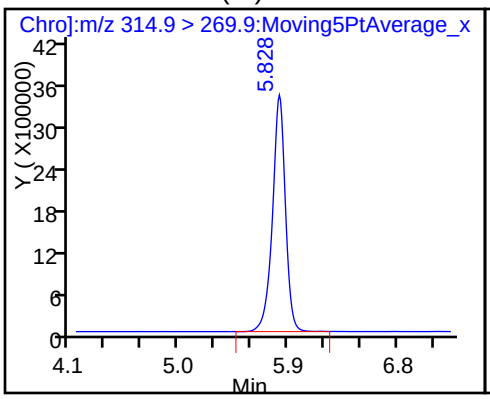
7 Perfluorohexanoic acid



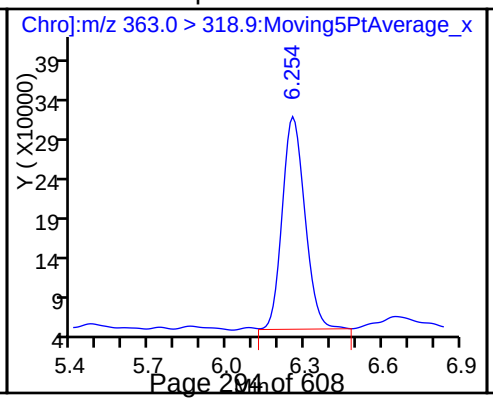
7 Perfluorohexanoic acid



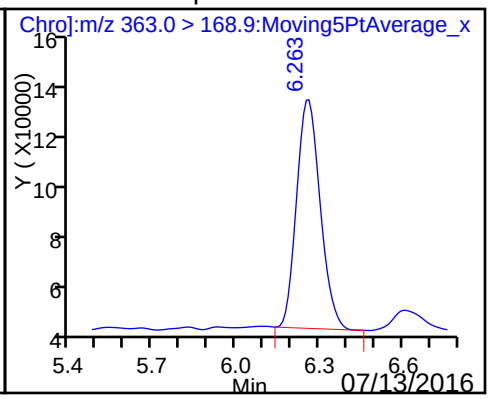
* 6 13C2 PFHxA (IS)



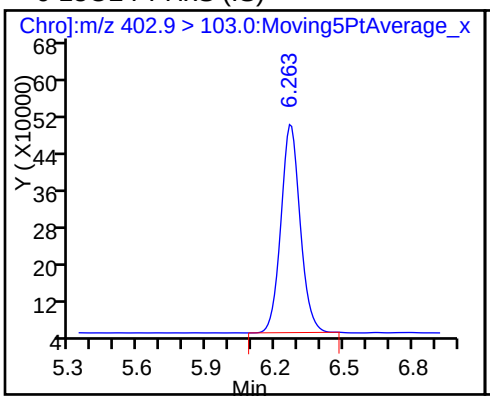
8 Perfluoroheptanoic acid



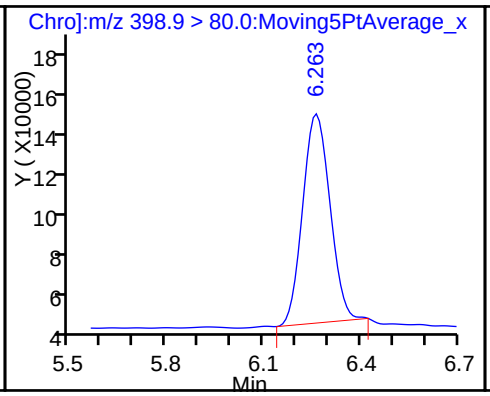
8 Perfluoroheptanoic acid



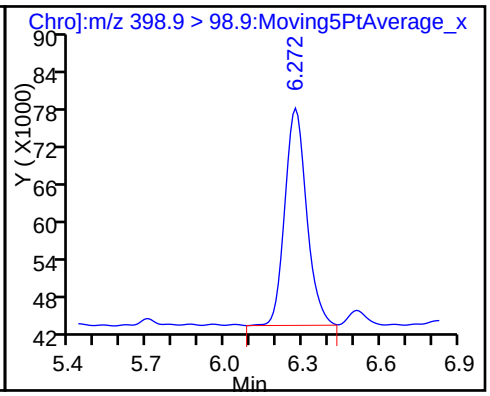
* 9 18O2 PFHxS (IS)



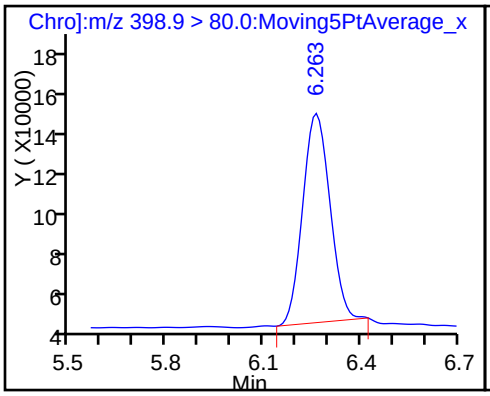
10 Perfluorohexane Sulfonate



10 Perfluorohexane Sulfonate



11 Perfluorohexanesulfonic acid



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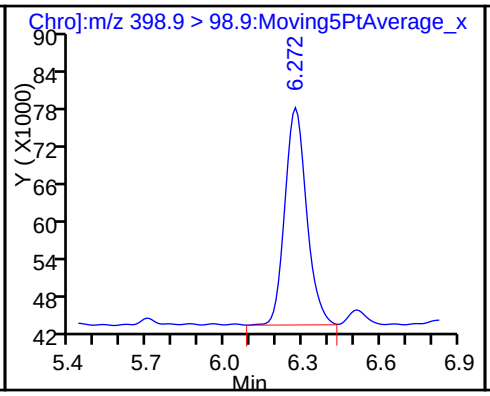
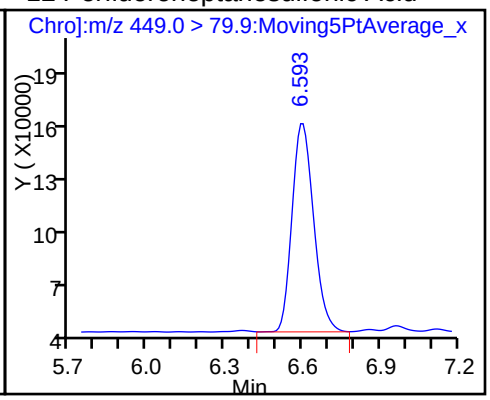
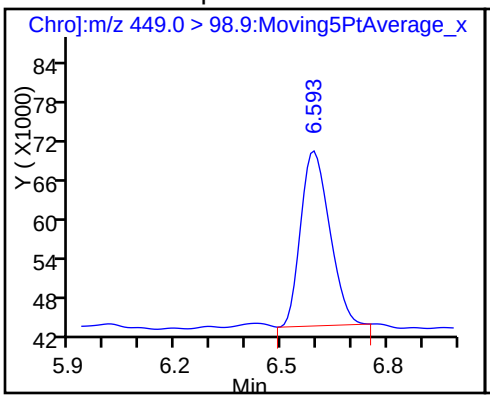


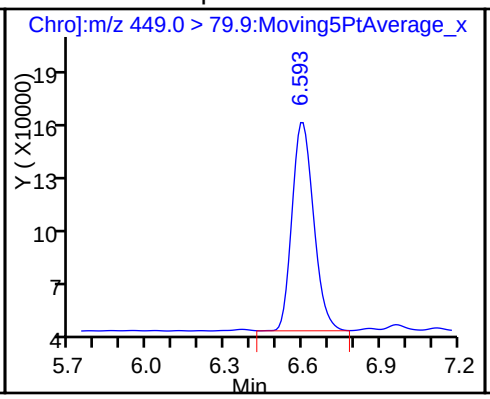
12 Perfluoroheptanesulfonic Acid



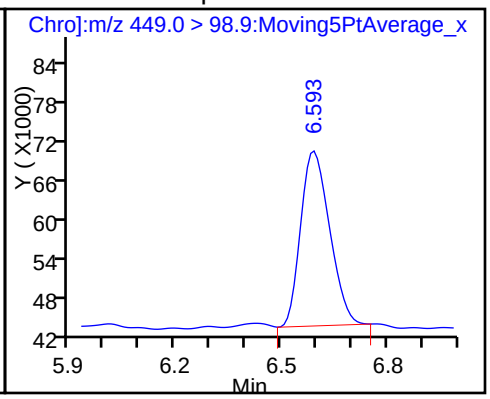
12 Perfluoroheptanesulfonic Acid



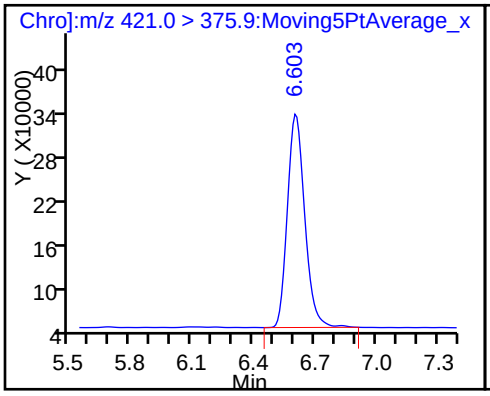
13 Perfluoroheptane Sulfonate



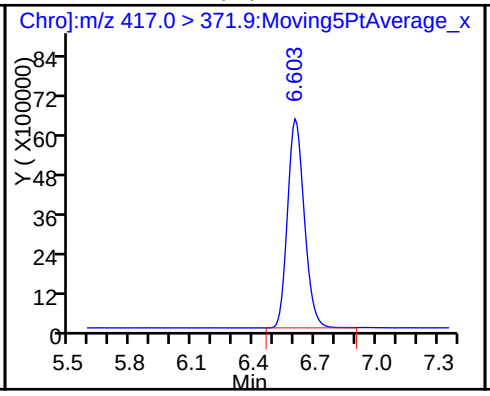
13 Perfluoroheptane Sulfonate



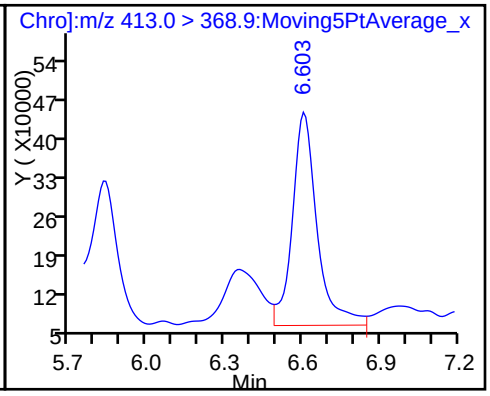
$ 14 13C8 PFOA



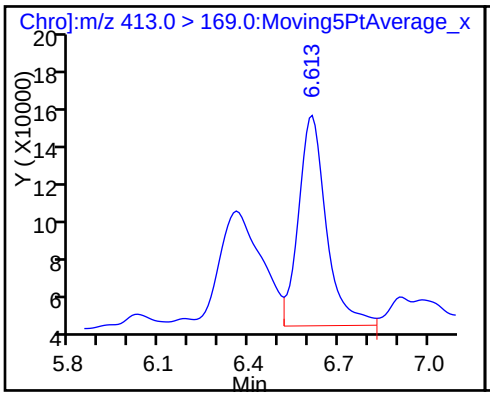
* 15 13C4 PFOA (IS)



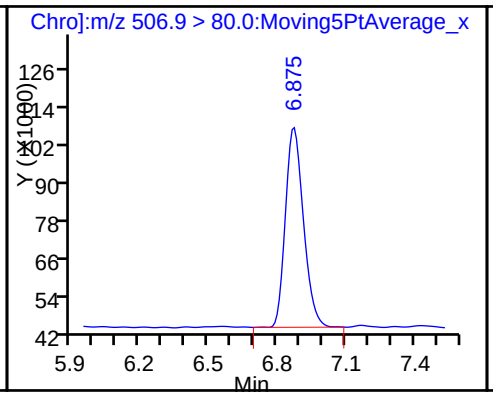
16 Perfluorooctanoic acid



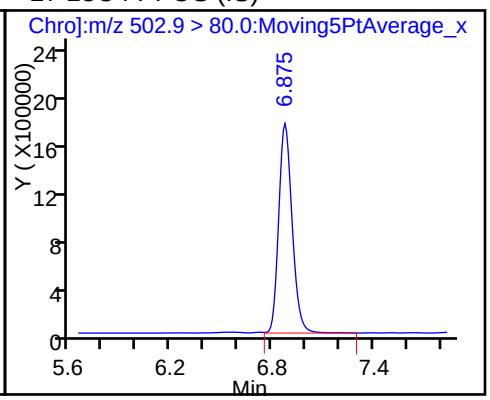
16 Perfluorooctanoic acid



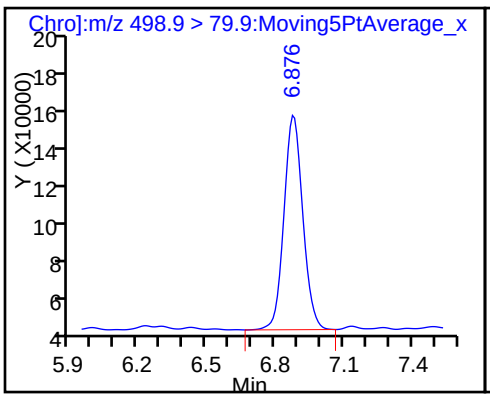
$ 18 13C8 PFOS



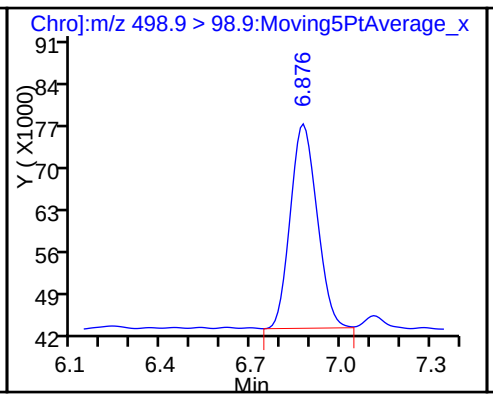
* 17 13C4 PFOS (IS)



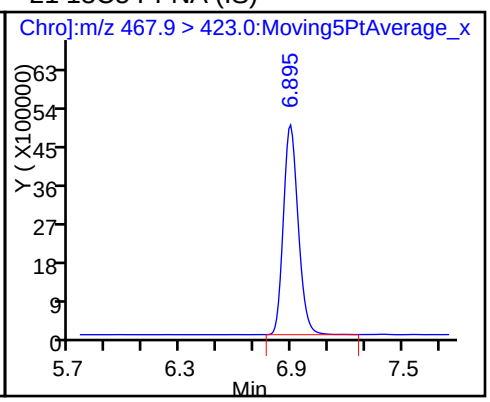
19 Perfluorooctane sulfonic acid



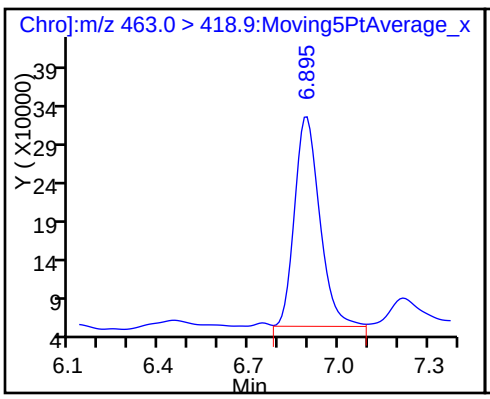
19 Perfluorooctane sulfonic acid



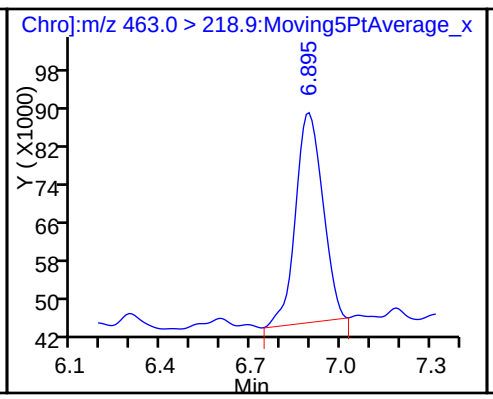
* 21 13C5 PFNA (IS)



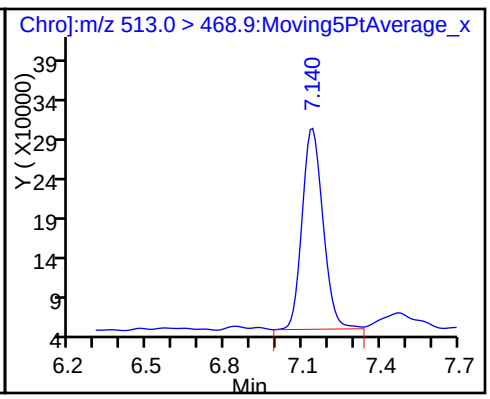
20 Perfluorononanoic acid



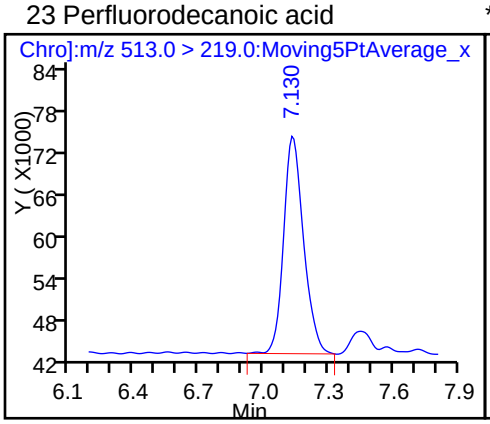
20 Perfluorononanoic acid



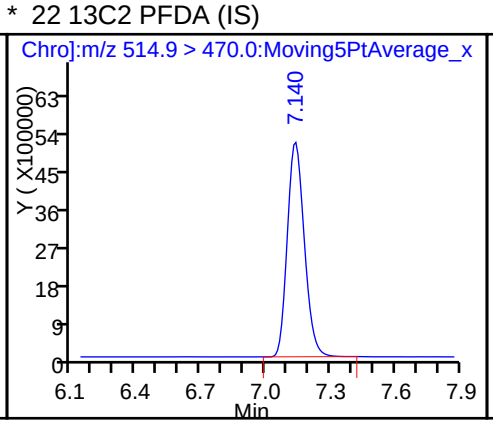
23 Perfluorodecanoic acid



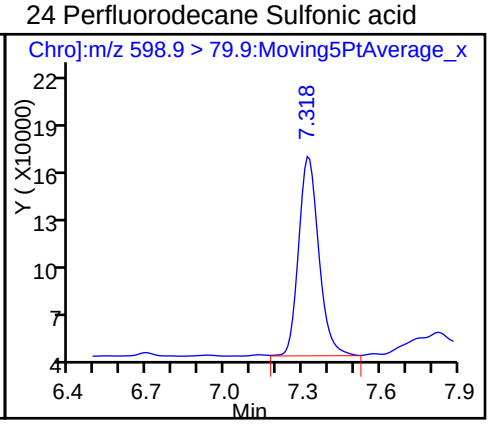
23 Perfluorodecanoic acid



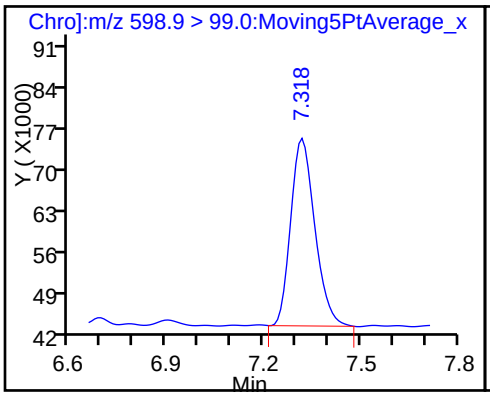
* 22 13C2 PFDA (IS)



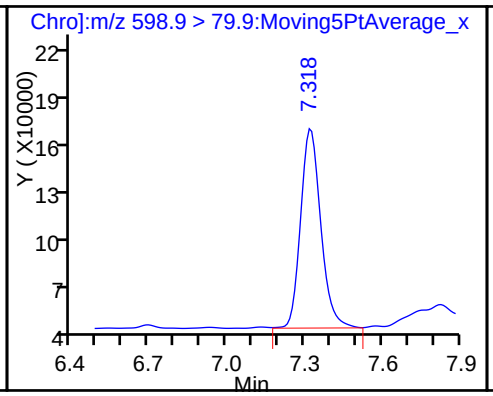
24 Perfluorodecane Sulfonic acid



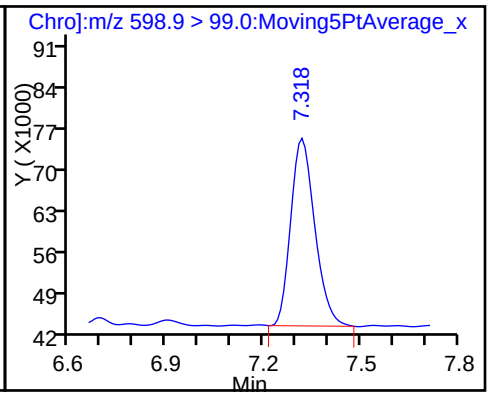
24 Perfluorodecane Sulfonic acid



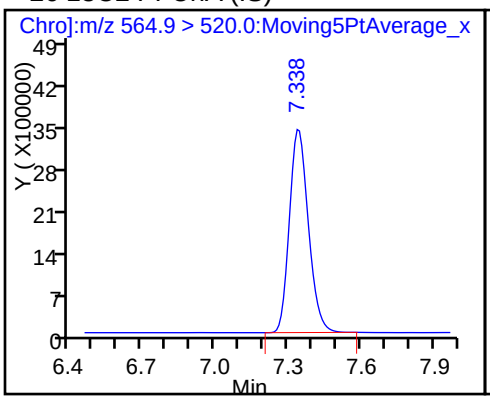
25 Perfluorodecane Sulfonate



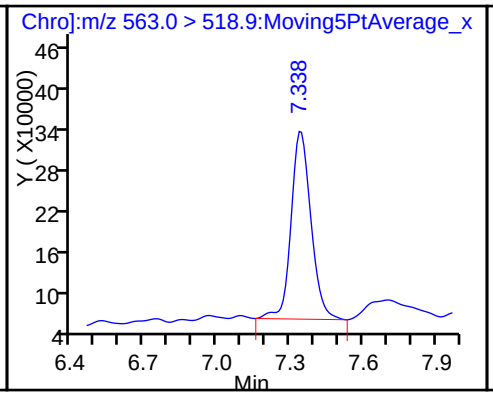
25 Perfluorodecane Sulfonate



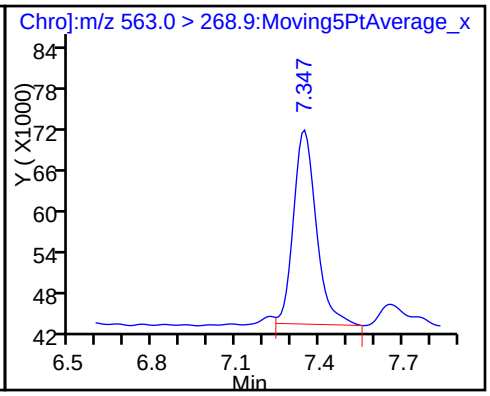
* 26 13C2 PFUnA (IS)



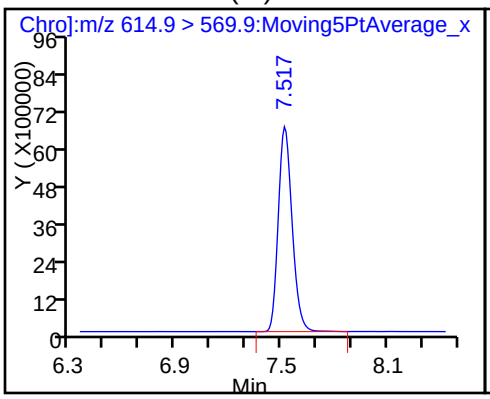
27 Perfluoroundecanoic acid



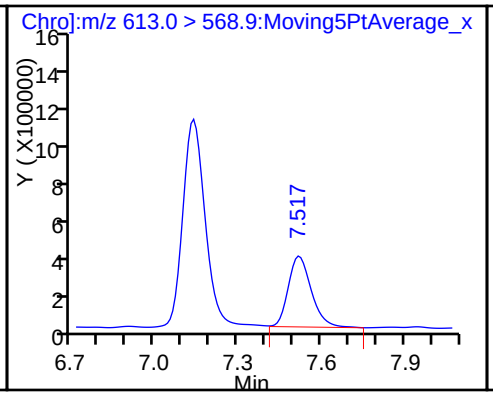
27 Perfluoroundecanoic acid



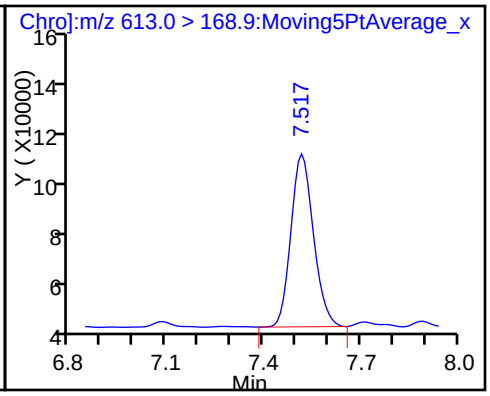
* 28 13C2 PFDoA (IS)



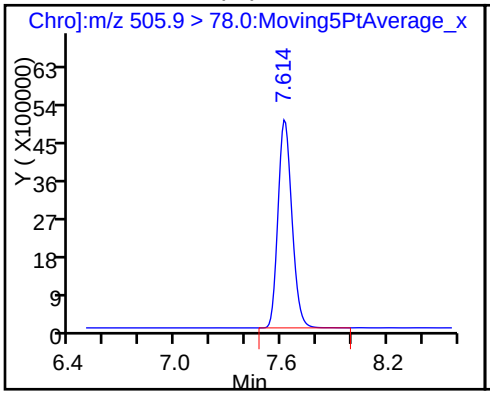
29 Perfluorododecanoic acid



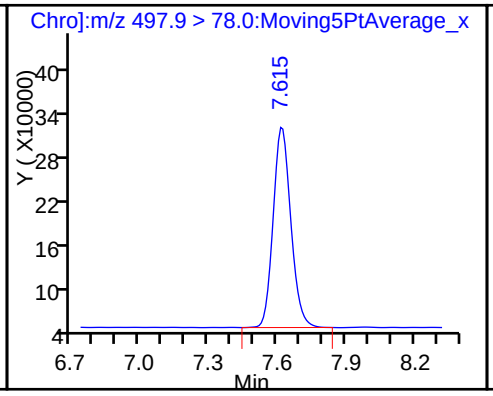
29 Perfluorododecanoic acid



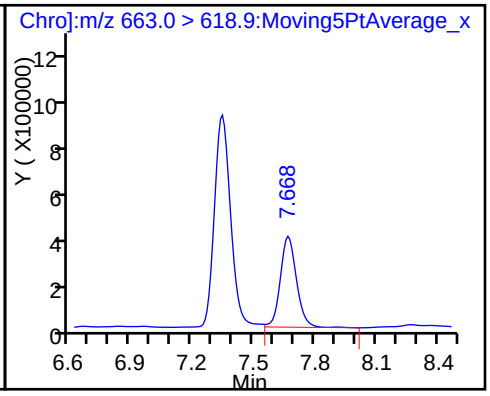
* 31 13C8 FOSA (IS)



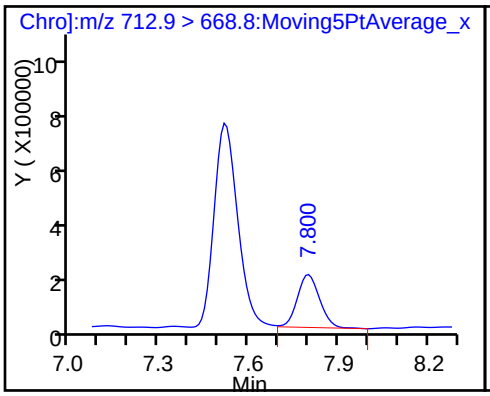
32 Perfluorooctane Sulfonamide



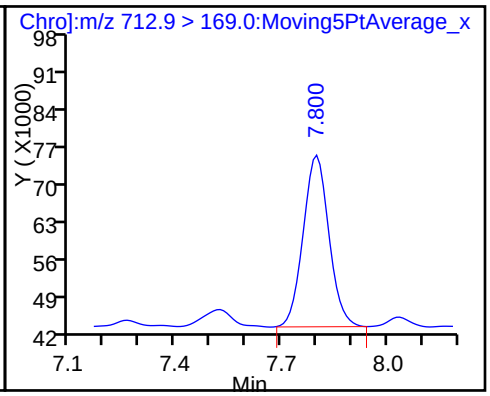
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



Manual Integration/User Assign Peak Report

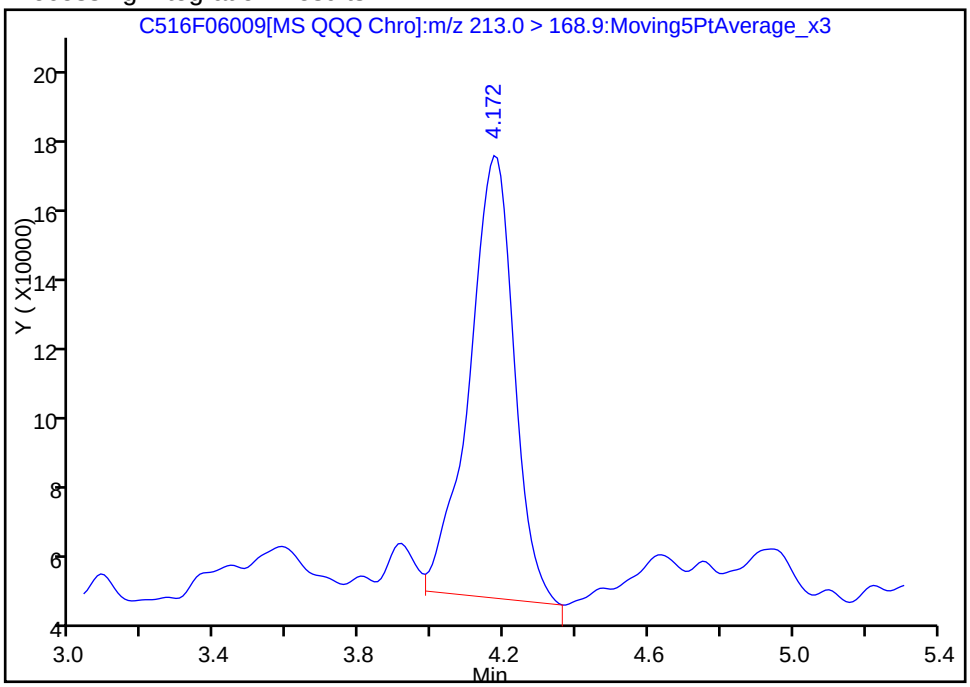
TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06009.d
Injection Date: 06-Jun-2016 15:02:17 Instrument ID: LC_LCMS5
Lims ID: STD0005
Client ID:
Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 4
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Method: 8321_PFC Limit Group: LC - PFC
Column: Detector MS QQQ

2 Perfluorobutyric acid, CAS: 375-22-4

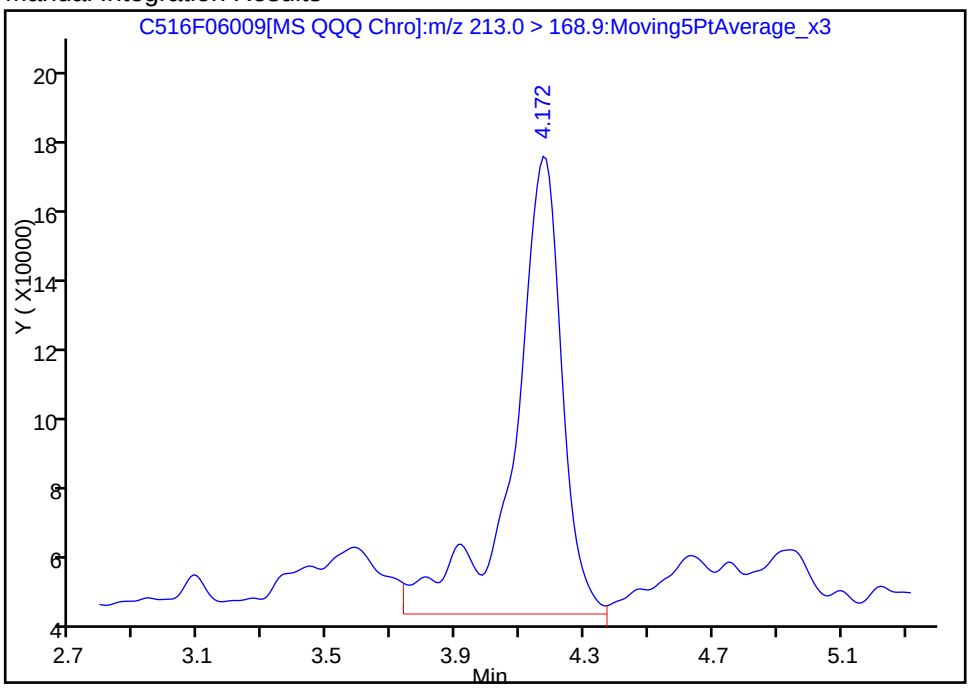
Processing Integration Results

RT: 4.17
Area: 1029041
Amount: 0.374913
Amount Units: ug/L



Manual Integration Results

RT: 4.17
Area: 1295896
Amount: 0.454566
Amount Units: ug/L



Reviewer: meyera, 07-Jun-2016 12:59:51
Audit Action: Manually Integrated
Audit Reason: Baseline

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06010.d
Lims ID: STD0010
Client ID:
Sample Type: IC Calib Level: 3
Inject. Date: 06-Jun-2016 15:14:36 ALS Bottle#: 0 Worklist Smp#: 5
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: STD 0010, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 07-Jun-2016 14:08:47 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK003

First Level Reviewer: meyera Date: 07-Jun-2016 12:59:20

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									M
216.7 > 172.0	4.162	4.020	0.142		27598245	10.0			M
2 Perfluorobutyric acid									M
213.0 > 168.9	4.162	4.020	0.142	1.000	3038727	1.03			M
3 Perfluoropentanoic acid									
263.0 > 218.9	5.242	5.100	0.142	0.901	2769987	1.01			
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.364	5.222	0.142	0.857	1117801	0.8579			
298.9 > 98.9	5.355	5.222	0.133	0.855	317629		3.52(2.57-2.57)		
4 Perfluorobutane Sulfonate									R
298.9 > 79.9	5.364	5.222	0.142	0.857	1117801	0.8579			R
298.9 > 98.9	5.355	5.222	0.133	0.855	317629		3.52(1.80-3.35)		
7 Perfluorohexanoic acid									
313.0 > 268.9	5.819	5.686	0.133	1.000	2232965	1.01			
313.0 > 118.6	5.847	5.686	0.161	1.005	55910		39.94(34.05-63.23)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.818	5.695	0.123		22902773	10.0			
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.254	6.121	0.133	0.948	2810806	0.9641			
363.0 > 168.9	6.254	6.121	0.133	0.948	746729		3.76(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.263	6.130	0.133		2379792	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.263	6.130	0.133	1.000	996121	0.9464			R
398.9 > 98.9	6.263	6.130	0.133	1.000	385155		2.59(1.30-2.41)		
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.263	6.130	0.133	1.000	996121	0.9464			
398.9 > 98.9	6.263	6.130	0.133	1.000	385155		2.59(1.85-1.85)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.593	6.460	0.133	0.960	1051810	0.9808			
449.0 > 98.9	6.593	6.460	0.133	0.960	322325		3.26(0.00-0.00)		
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.593	6.460	0.133	0.960	1051810	0.9808			
449.0 > 98.9	6.593	6.460	0.133	0.960	322325		3.26(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.593	6.470	0.123	1.000	3153884	1.16			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.593	6.470	0.123		32501126	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.594	6.471	0.123	1.000	3529270	0.9782			
413.0 > 169.0	6.594	6.471	0.123	1.000	1161058		3.04(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.865	6.742	0.123	1.000	589580	1.05			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.866	6.743	0.123		8538322	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.866	6.743	0.123	1.000	1171224	1.06			R
498.9 > 98.9	6.866	6.743	0.123	1.000	385147		3.04(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.886	6.753	0.133		24397078	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.886	6.753	0.133	1.000	2681286	0.9404			
463.0 > 218.9	6.886	6.753	0.133	1.000	402542		6.66(5.59-10.38)		
23 Perfluorodecanoic acid									
513.0 > 468.9	7.130	6.998	0.132	1.000	2800062	1.04			
513.0 > 219.0	7.121	6.998	0.123	0.999	245568		11.40(10.49-19.48)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.130	7.007	0.123		25884523	10.0			
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.309	7.186	0.123	1.065	1047130	0.9127			
598.9 > 99.0	7.309	7.186	0.123	1.065	256407		4.08(2.84-2.84)		
25 Perfluorodecane Sulfonate									R
598.9 > 79.9	7.309	7.186	0.123	1.065	1047130	0.9127			R
598.9 > 99.0	7.309	7.186	0.123	1.065	256407		4.08(1.99-3.69)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.338	7.215	0.123		16232780	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.338	7.215	0.123	1.000	2540060	1.06			R
563.0 > 268.9	7.329	7.215	0.113	0.999	344361		7.38(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.507	7.393	0.114		32725502	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.507	7.394	0.113	1.000	3492545	0.9865			
613.0 > 168.9	7.507	7.394	0.113	1.000	493117		7.08(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.614	7.529	0.085		24736240	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.615	7.530	0.085	1.000	2697496	1.00			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.658	7.545	0.113	1.020	3270152	1.00			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.791	7.677	0.114	1.038	1783816	0.9160			
712.9 > 169.0	7.791	7.677	0.114	1.038	269547		6.62(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Review Flags

M - Manually Integrated

Reagents:

PFC_CAL_stock_00033	Amount Added:	50.00	Units: uL
PFC-IS_00021	Amount Added:	20.00	Units: uL

Report Date: 07-Jun-2016 14:08:48 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06010.d

Injection Date: 06-Jun-2016 15:14:36 Instrument ID: LC_LCMS5

Lims ID: STD0010

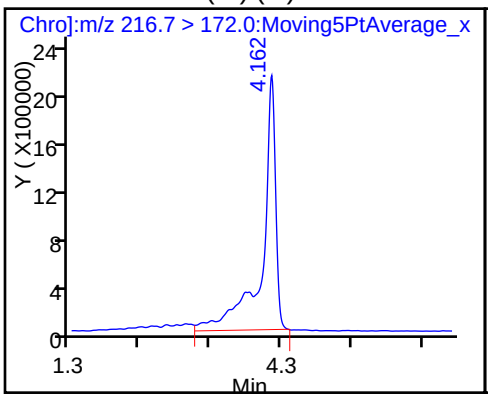
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 5

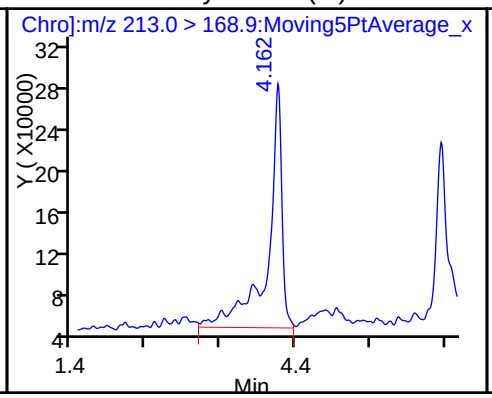
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

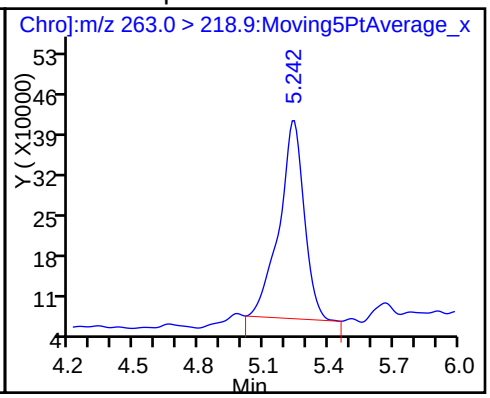
* 1 13C4 PFBA (IS) (M)



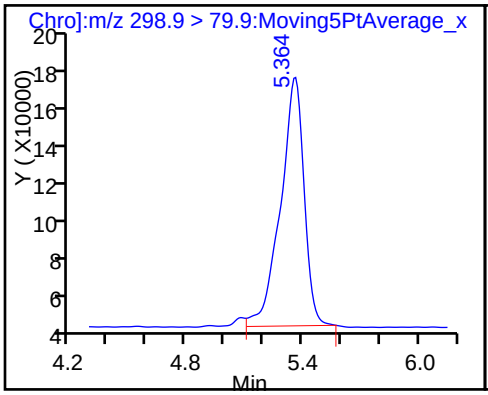
2 Perfluorobutyric acid (M)



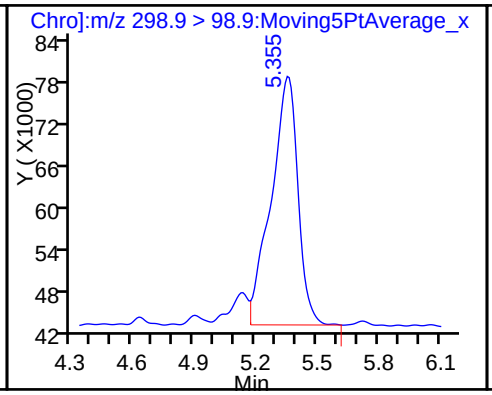
3 Perfluoropentanoic acid



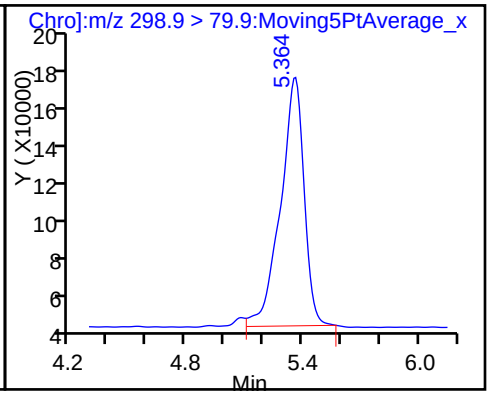
5 Perfluorobutanesulfonic acid



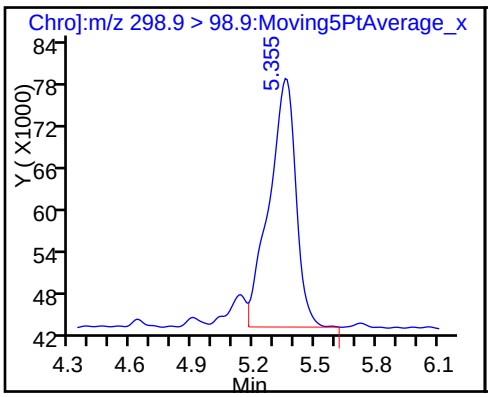
5 Perfluorobutanesulfonic acid



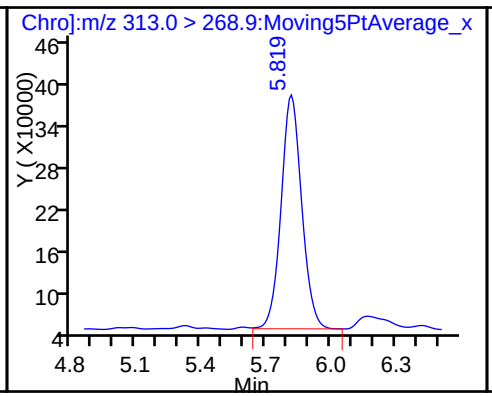
4 Perfluorobutane Sulfonate



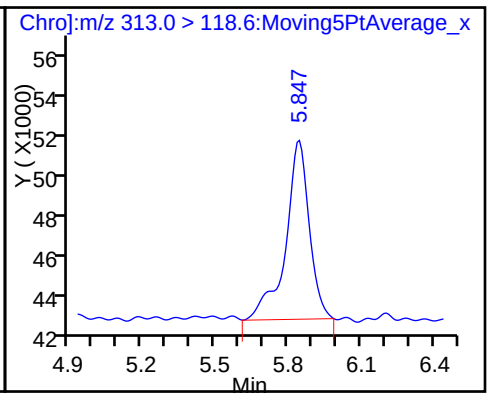
4 Perfluorobutane Sulfonate



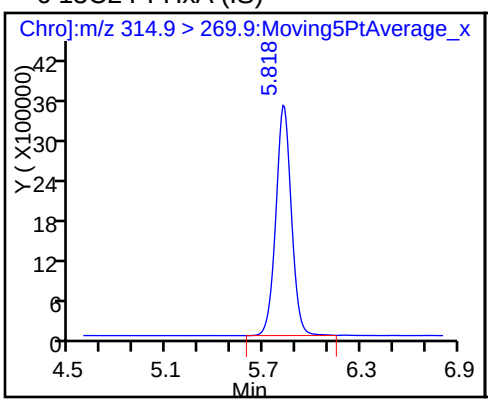
7 Perfluorohexanoic acid



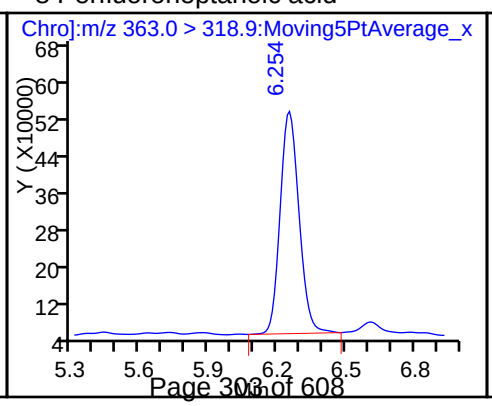
7 Perfluorohexanoic acid



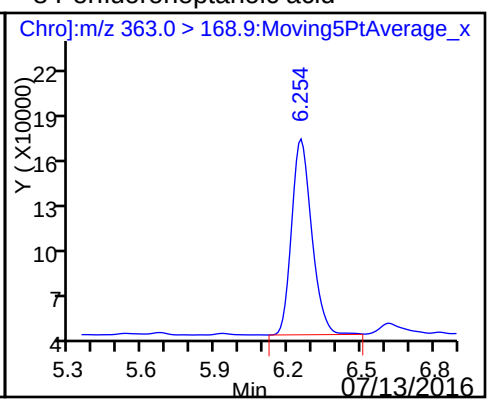
* 6 13C2 PFHxA (IS)



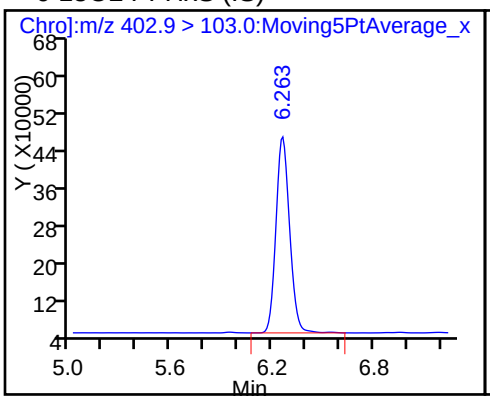
8 Perfluoroheptanoic acid



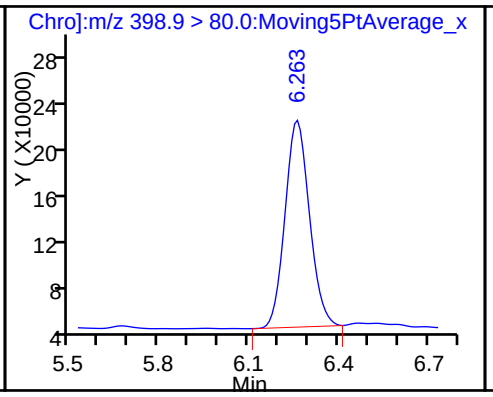
8 Perfluoroheptanoic acid



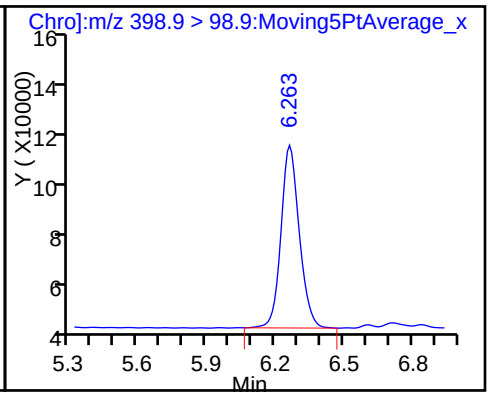
* 9 18O2 PFHxS (IS)



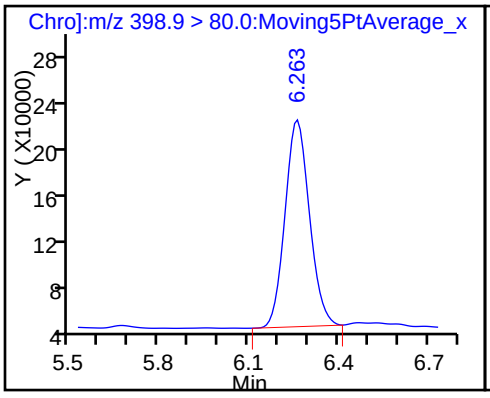
10 Perfluorohexane Sulfonate



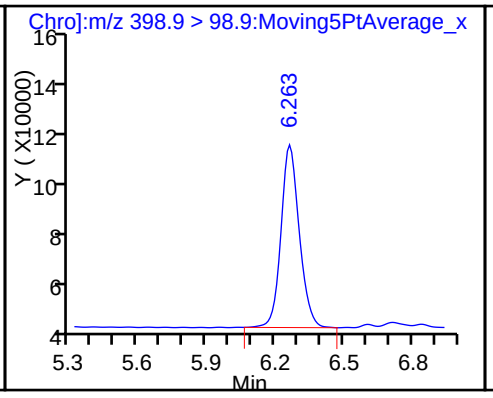
10 Perfluorohexane Sulfonate



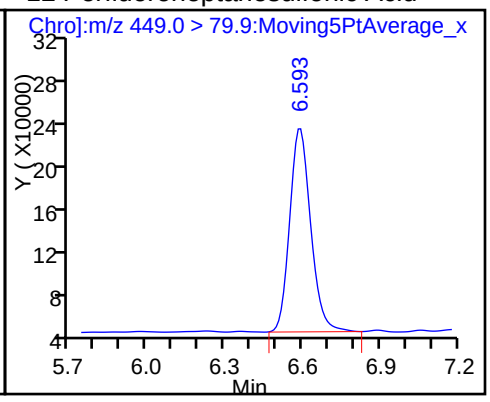
11 Perfluorohexanesulfonic acid



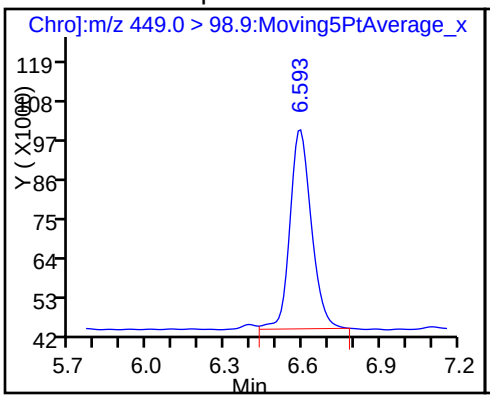
11 Perfluorohexanesulfonic acid



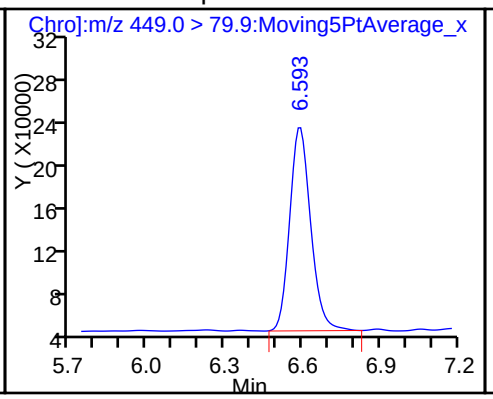
12 Perfluoroheptanesulfonic Acid



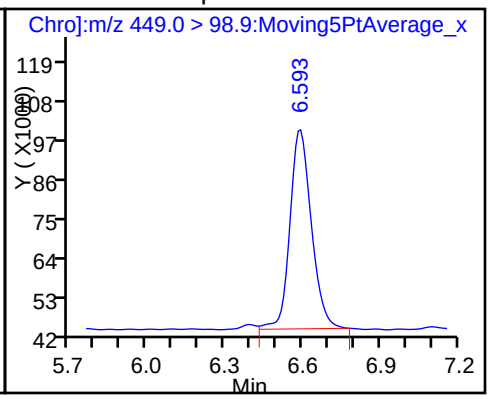
12 Perfluoroheptanesulfonic Acid



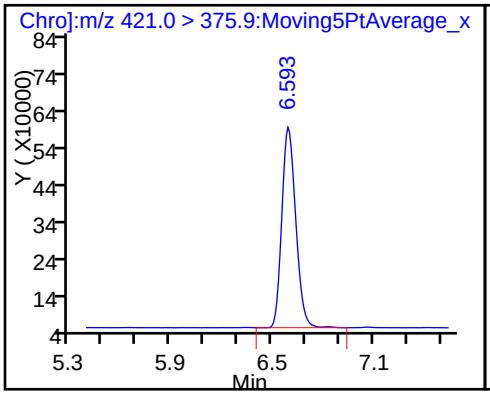
13 Perfluoroheptane Sulfonate



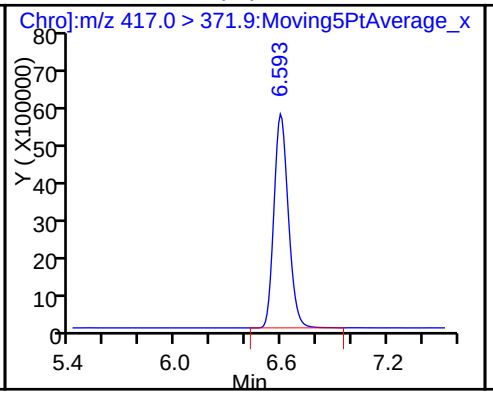
13 Perfluoroheptane Sulfonate



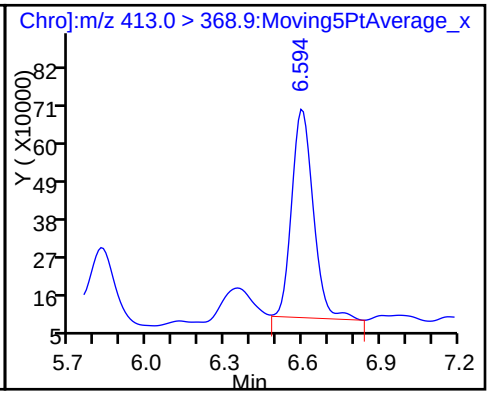
$ 14 13C8 PFOA



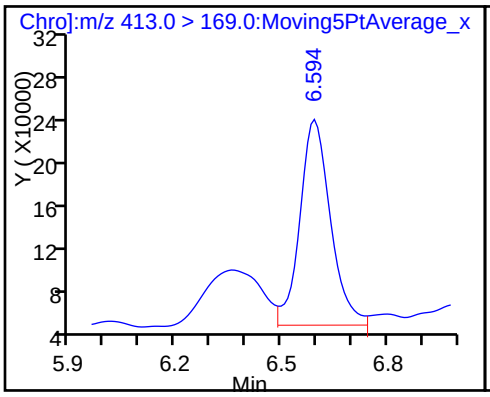
* 15 13C4 PFOA (IS)



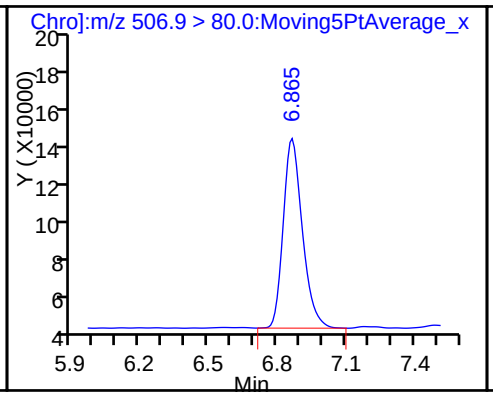
16 Perfluorooctanoic acid



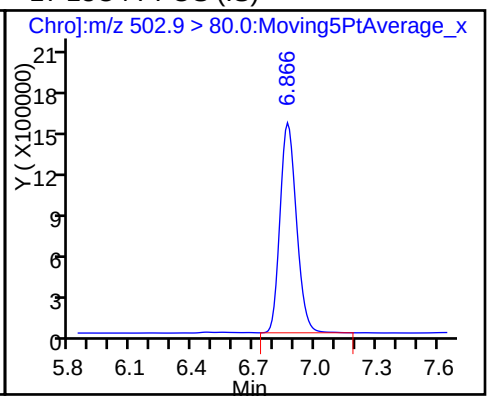
16 Perfluorooctanoic acid



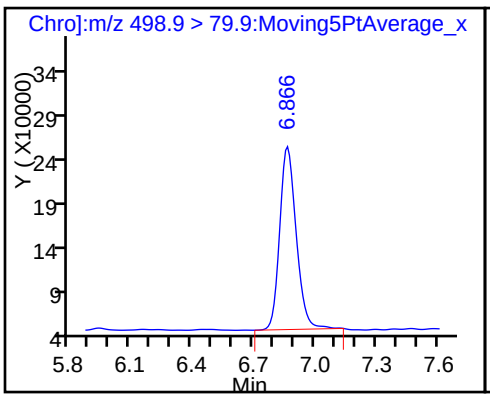
$ 18 13C8 PFOS



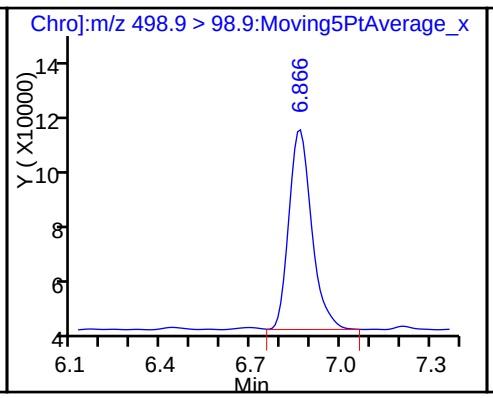
* 17 13C4 PFOS (IS)



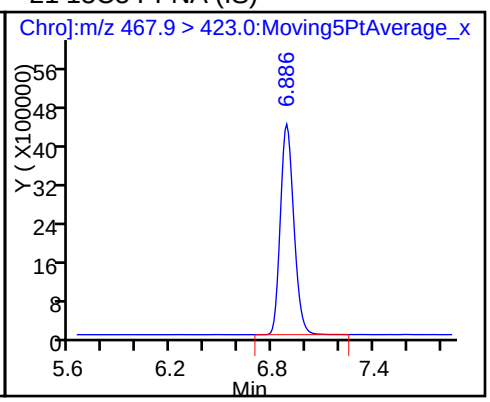
19 Perfluorooctane sulfonic acid



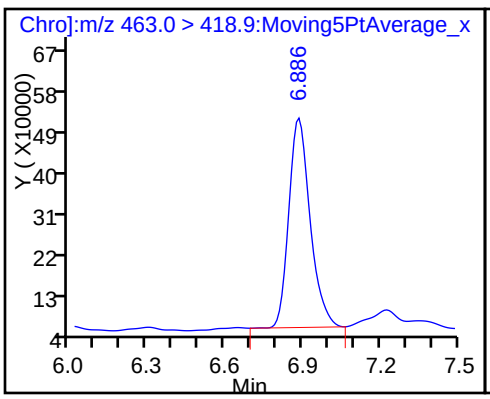
19 Perfluorooctane sulfonic acid



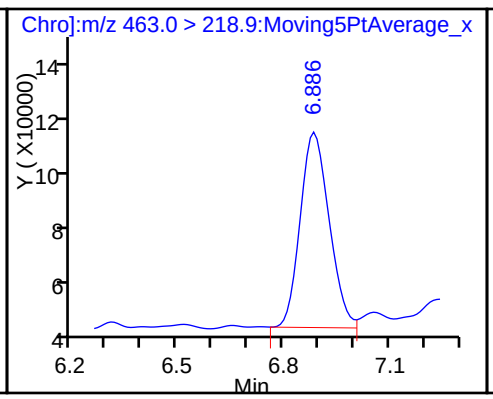
* 21 13C5 PFNA (IS)



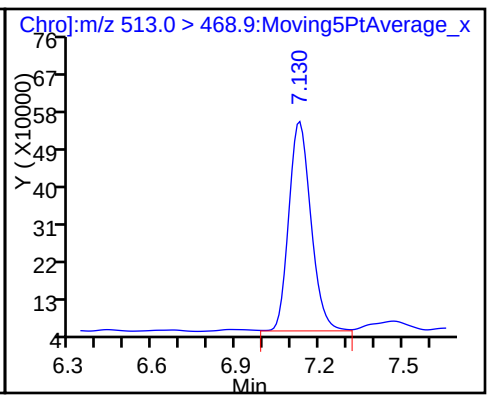
20 Perfluorononanoic acid



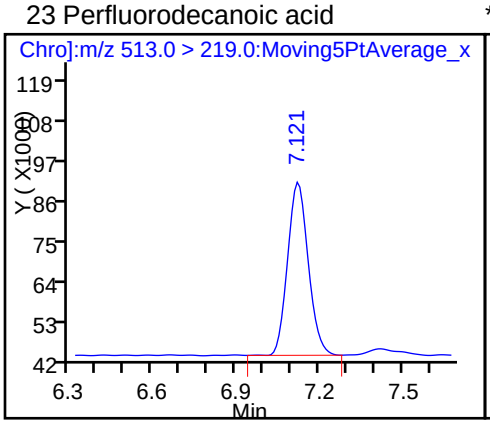
20 Perfluorononanoic acid



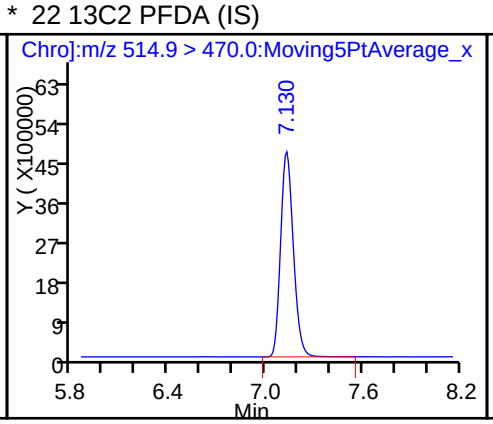
23 Perfluorodecanoic acid



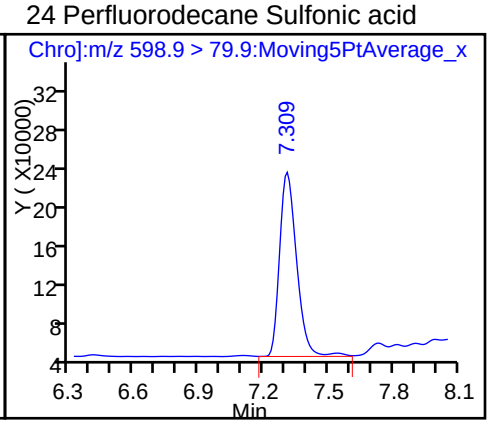
23 Perfluorodecanoic acid



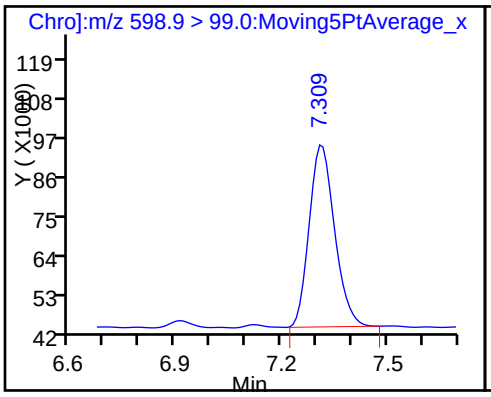
* 22 13C2 PFDA (IS)



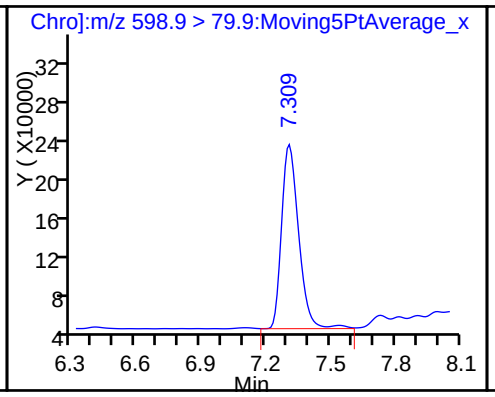
24 Perfluorodecane Sulfonic acid



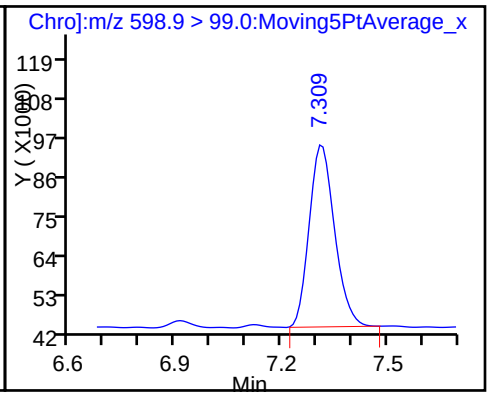
24 Perfluorodecane Sulfonic acid



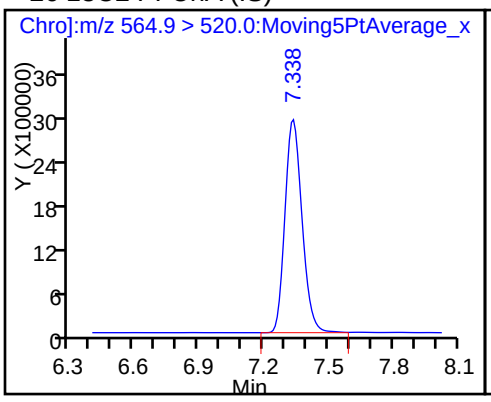
25 Perfluorodecane Sulfonate



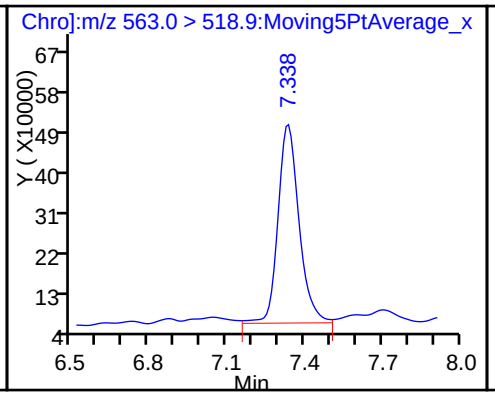
25 Perfluorodecane Sulfonate



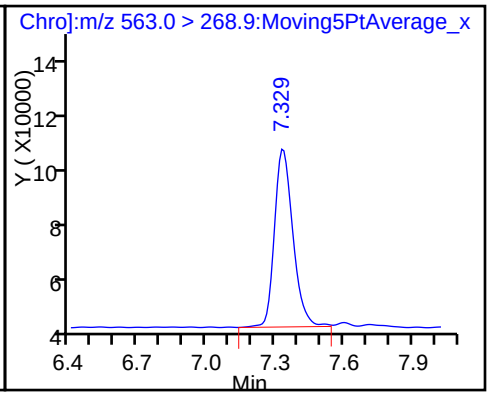
* 26 13C2 PFUnA (IS)



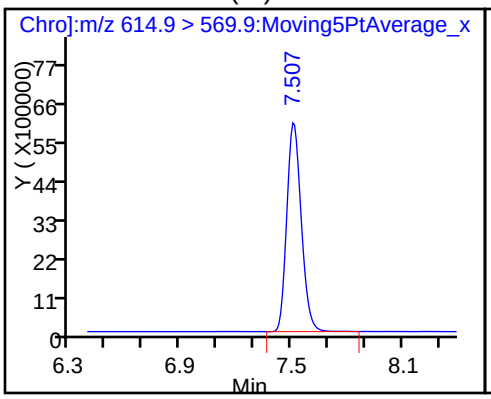
27 Perfluoroundecanoic acid



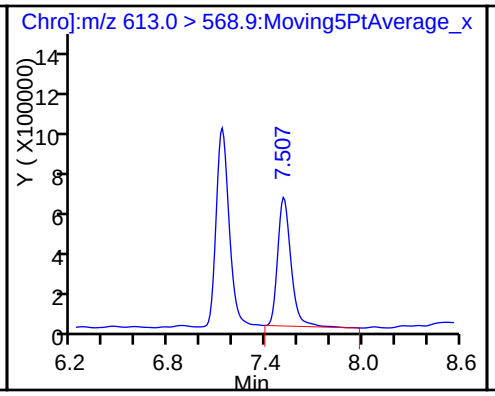
27 Perfluoroundecanoic acid



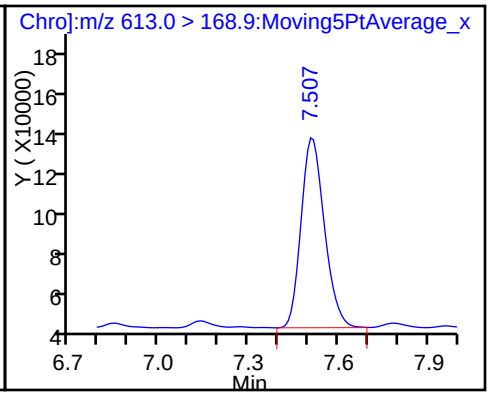
* 28 13C2 PFDoA (IS)



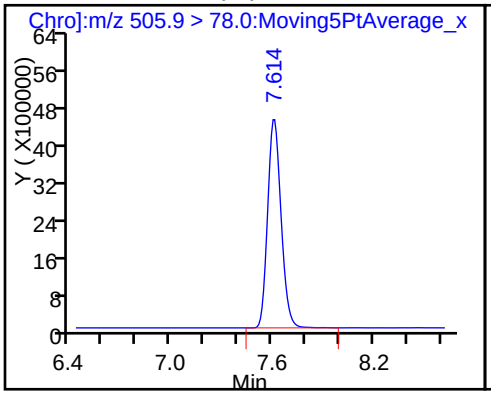
29 Perfluorododecanoic acid



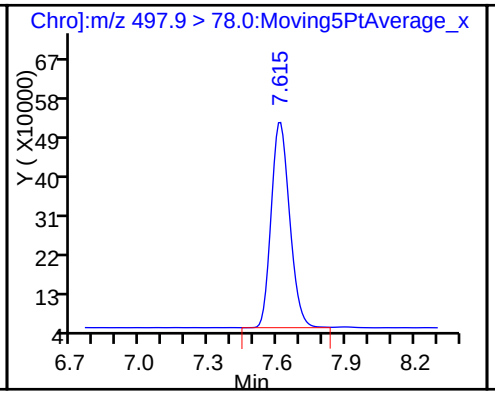
29 Perfluorododecanoic acid



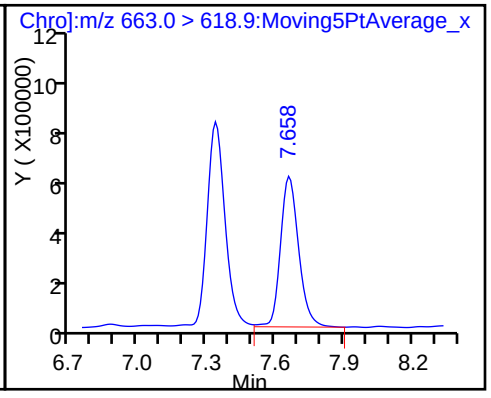
* 31 13C8 FOSA (IS)



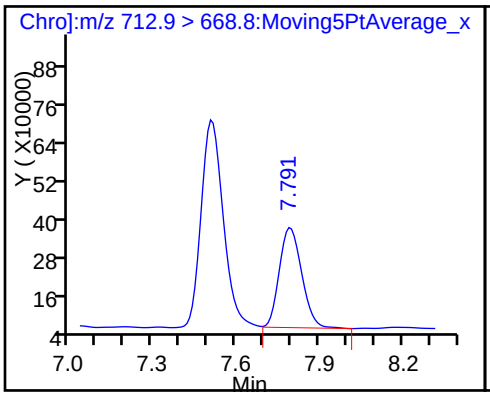
32 Perfluorooctane Sulfonamide



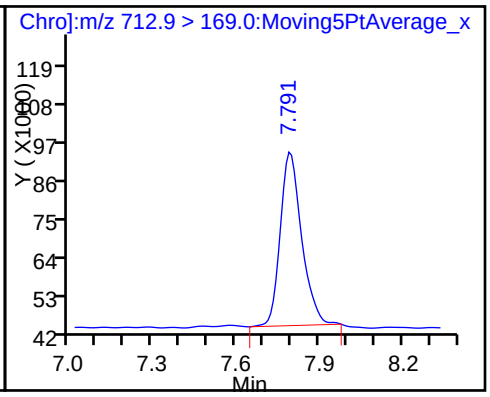
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



Manual Integration/User Assign Peak Report

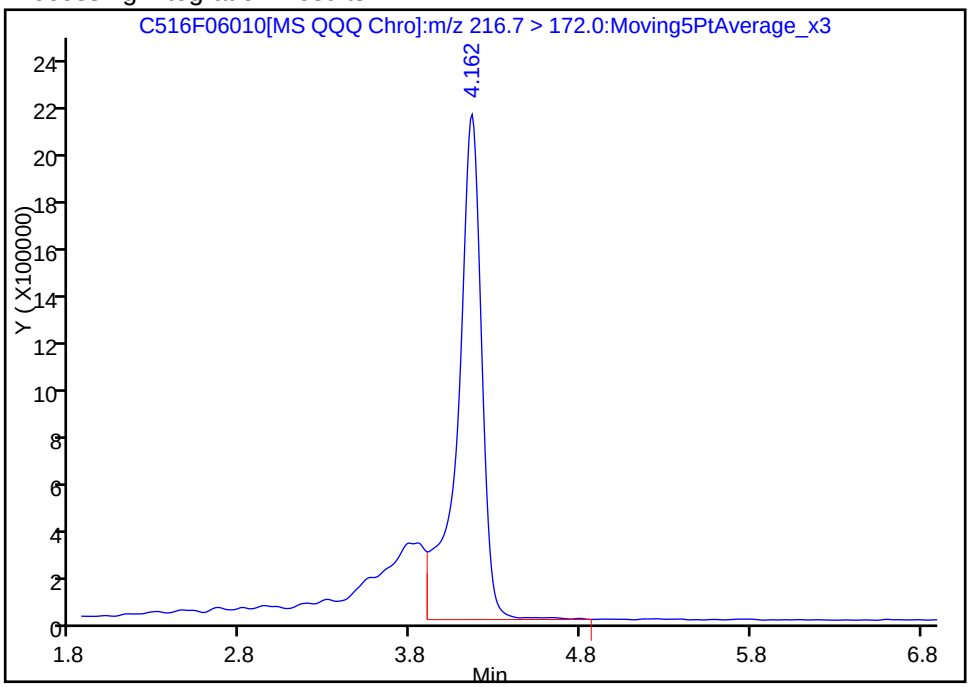
TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06010.d
Injection Date: 06-Jun-2016 15:14:36 Instrument ID: LC_LCMS5
Lims ID: STD0010
Client ID:
Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 5
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Method: 8321_PFC Limit Group: LC - PFC
Column: Detector MS QQQ

* 1 13C4 PFBA (IS), CAS: STL01003

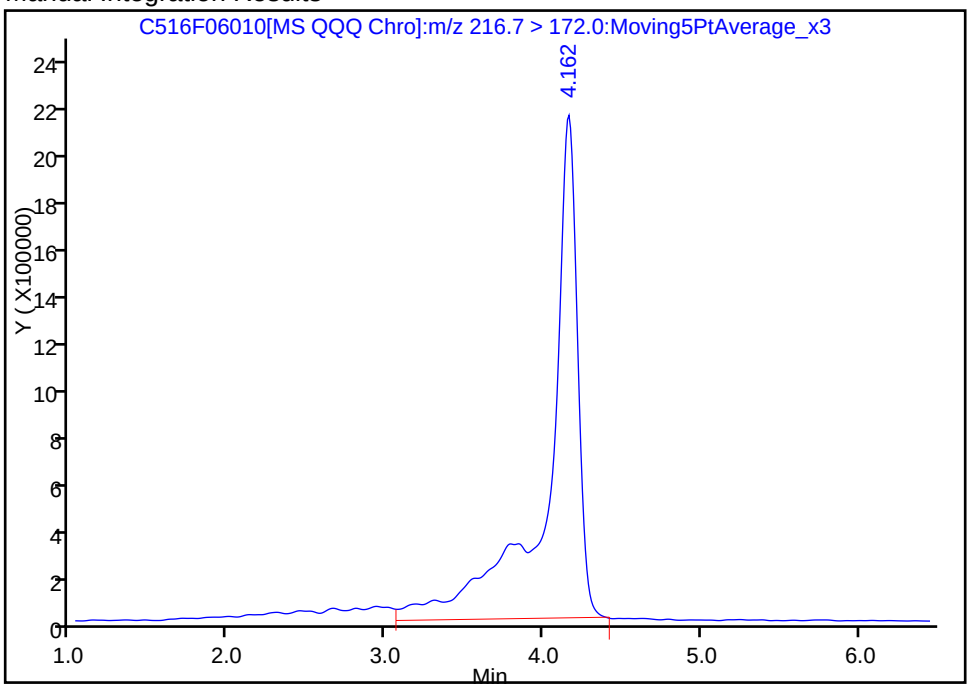
Processing Integration Results

RT: 4.16
Area: 20559374
Amount: 10.000000
Amount Units: ug/L



Manual Integration Results

RT: 4.16
Area: 27598245
Amount: 10.000000
Amount Units: ug/L



Reviewer: meyera, 07-Jun-2016 12:59:20
Audit Action: Manually Integrated
Audit Reason: Baseline

Manual Integration/User Assign Peak Report

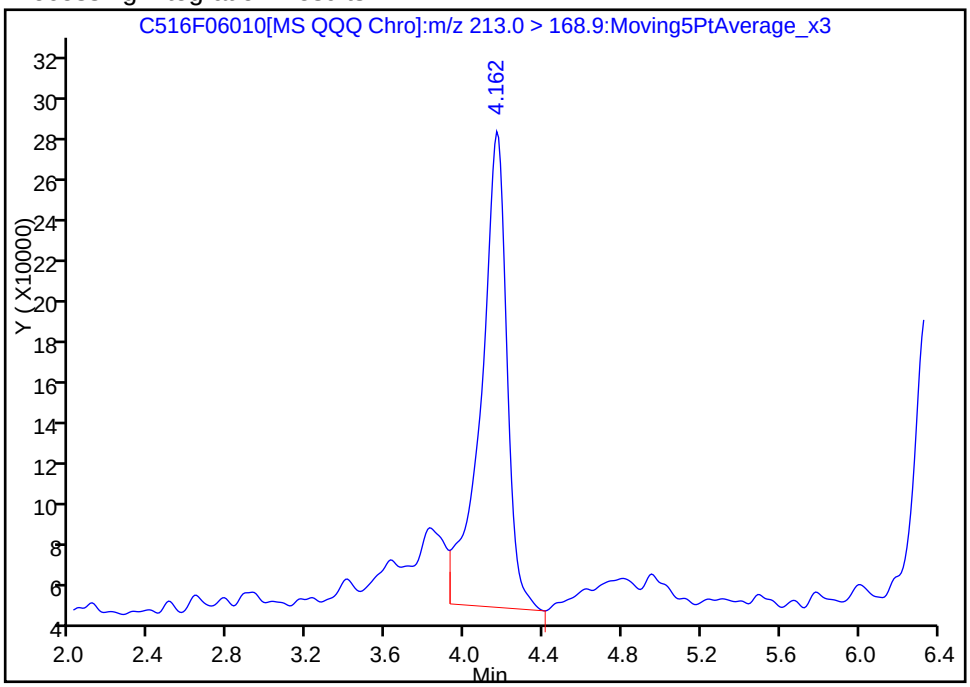
TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06010.d
Injection Date: 06-Jun-2016 15:14:36 Instrument ID: LC_LCMS5
Lims ID: STD0010
Client ID:
Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 5
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Method: 8321_PFC Limit Group: LC - PFC
Column: Detector MS QQQ

2 Perfluorobutyric acid, CAS: 375-22-4

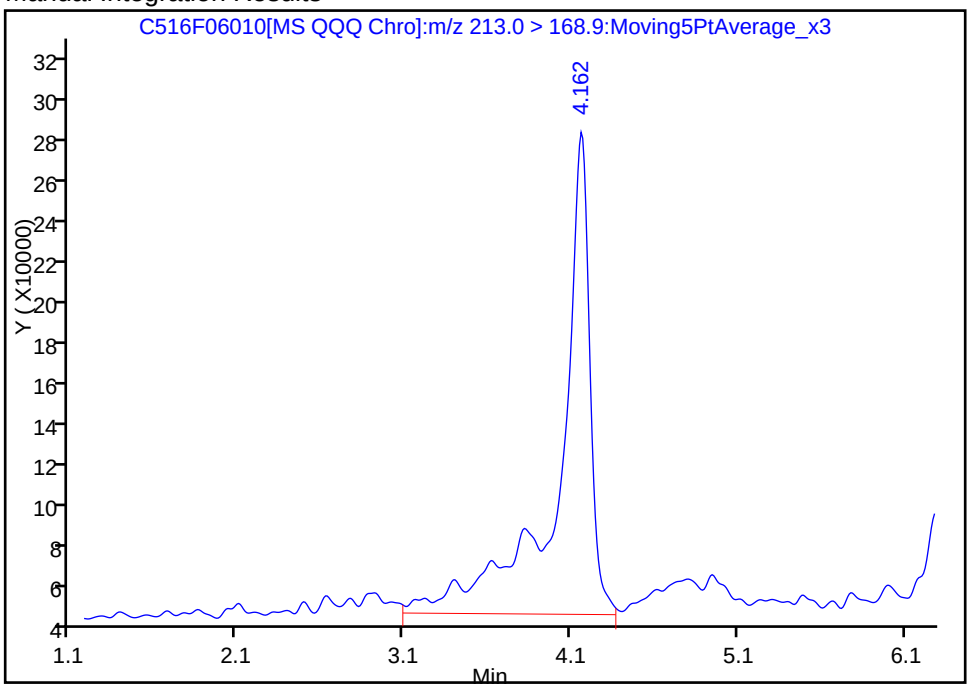
Processing Integration Results

RT: 4.16
Area: 2073405
Amount: 0.770220
Amount Units: ug/L



Manual Integration Results

RT: 4.16
Area: 3038727
Amount: 1.029538
Amount Units: ug/L



Reviewer: meyera, 07-Jun-2016 12:59:20
Audit Action: Manually Integrated
Audit Reason: Baseline

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06011.d
Lims ID: STD0020
Client ID:
Sample Type: ICISAV Calib Level: 4
Inject. Date: 06-Jun-2016 15:26:53 ALS Bottle#: 0 Worklist Smp#: 6
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: STD 0020, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 07-Jun-2016 14:08:54 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK003

First Level Reviewer: meyera Date: 07-Jun-2016 12:56:38

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									M
216.7 > 172.0	4.162	4.162	0.0		26088805	10.0			M
2 Perfluorobutyric acid									M
213.0 > 168.9	4.162	4.162	0.0	1.000	5302668	1.90			M
3 Perfluoropentanoic acid									
263.0 > 218.9	5.232	5.232	0.0	0.899	5174660	1.90			
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.364	5.364	0.0	0.858	2150148	1.59			
298.9 > 98.9	5.355	5.364	-0.009	0.856	668844		3.21(2.57-2.57)		
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.364	5.364	0.0	0.858	2150148	1.59			
298.9 > 98.9	5.355	5.364	-0.009	0.856	668844		3.21(1.80-3.35)		
7 Perfluorohexanoic acid									
313.0 > 268.9	5.819	5.819	0.0	1.000	4642778	2.13			
313.0 > 118.6	5.828	5.819	0.009	1.002	128162		36.23(34.05-63.23)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.818	5.818	0.0		22852723	10.0			
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.244	6.244	0.0	0.947	5744336	1.96			
363.0 > 168.9	6.244	6.244	0.0	0.947	1519317		3.78(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.253	6.253	0.0		2458667	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.253	6.253	0.0	1.000	2005825	1.93			R
398.9 > 98.9	6.253	6.253	0.0	1.000	598069		3.35(1.30-2.41)		
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.253	6.253	0.0	1.000	2005825	1.93			
398.9 > 98.9	6.253	6.253	0.0	1.000	598069		3.35(1.85-1.85)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.583	6.583	0.0	0.959	2150073	1.87			
449.0 > 98.9	6.583	6.583	0.0	0.959	294863		7.29(0.00-0.00)		
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.583	6.583	0.0	0.959	2150073	1.87			
449.0 > 98.9	6.583	6.583	0.0	0.959	294863		7.29(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.593	6.593	0.0	1.000	5869974	2.15			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.593	6.593	0.0		33184339	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.594	6.594	0.0	1.000	6983614	1.96			
413.0 > 169.0	6.594	6.594	0.0	1.000	2269227		3.08(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.865	6.865	0.0	1.000	1266475	2.15			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.866	6.866	0.0		9090094	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.866	6.866	0.0	1.000	2158847	1.88			R
498.9 > 98.9	6.866	6.866	0.0	1.000	810717		2.66(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.886	6.886	0.0		25217378	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.886	6.886	0.0	1.000	5817495	2.02			
463.0 > 218.9	6.886	6.886	0.0	1.000	799914		7.27(5.59-10.38)		
23 Perfluorodecanoic acid									
513.0 > 468.9	7.130	7.130	0.0	1.000	5187930	1.96			
513.0 > 219.0	7.130	7.130	0.0	1.000	484901		10.70(10.49-19.48)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.130	7.130	0.0		25918394	10.0			
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.318	7.318	0.0	1.066	2240490	1.87			
598.9 > 99.0	7.318	7.318	0.0	1.066	751846		2.98(2.84-2.84)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.318	7.318	0.0	1.066	2240490	1.87			
598.9 > 99.0	7.318	7.318	0.0	1.066	751846		2.98(1.99-3.69)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.347	7.347	0.0		17106034	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.347	7.347	0.0	1.000	4772902	1.93			R
563.0 > 268.9	7.338	7.347	-0.009	0.999	637651		7.49(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.517	7.517	0.0		33224124	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.517	7.517	0.0	1.000	6822134	1.95			
613.0 > 168.9	7.517	7.517	0.0	1.000	1007833		6.77(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.614	7.614	0.0		25464298	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.615	7.615	0.0	1.000	5393596	1.94			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.668	7.668	0.0	1.020	6520781	2.05			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.800	7.800	0.0	1.038	3642443	1.85			
712.9 > 169.0	7.800	7.800	0.0	1.038	615826		5.91(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Review Flags

M - Manually Integrated

Reagents:

PFC_CAL_stock_00033	Amount Added: 100.00	Units: uL
PFC-IS_00021	Amount Added: 20.00	Units: uL

Report Date: 07-Jun-2016 14:08:54 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06011.d

Injection Date: 06-Jun-2016 15:26:53 Instrument ID: LC_LCMS5

Lims ID: STD0020

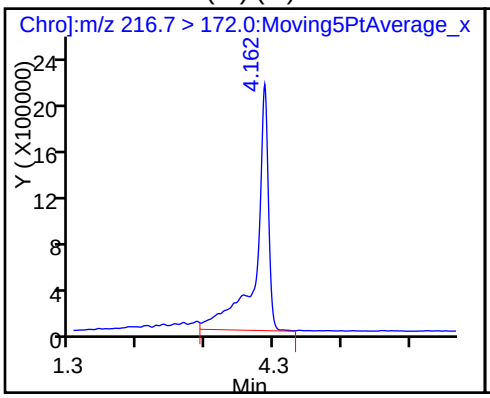
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 6

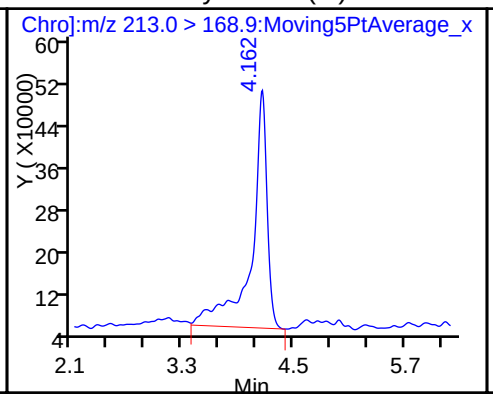
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

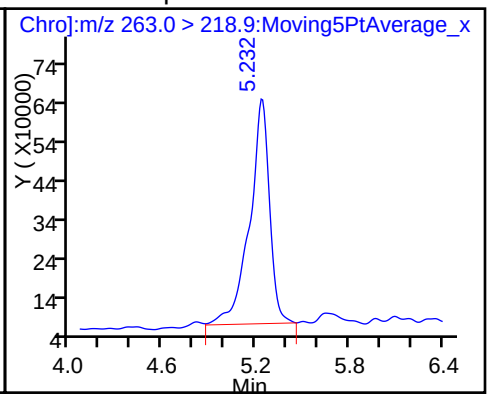
* 1 13C4 PFBA (IS) (M)



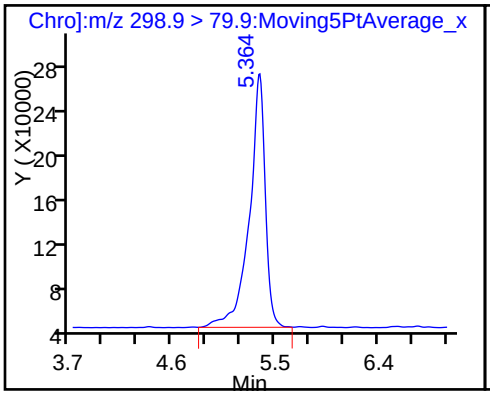
2 Perfluorobutyric acid (M)



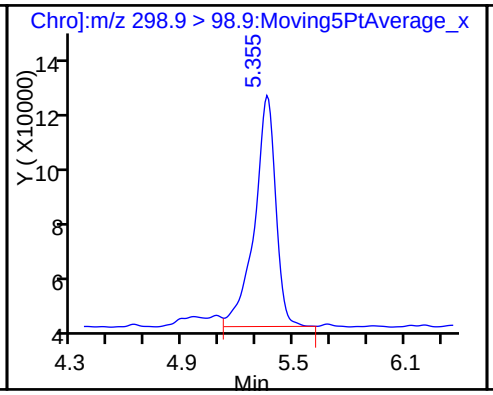
3 Perfluoropentanoic acid



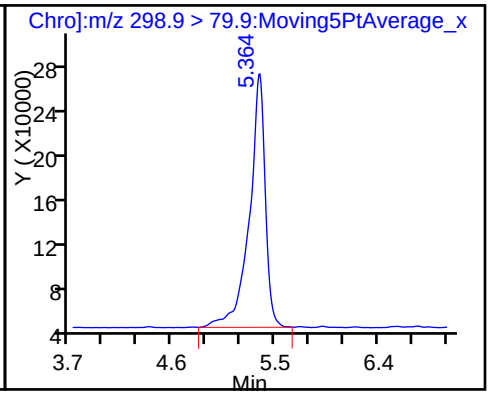
5 Perfluorobutanesulfonic acid



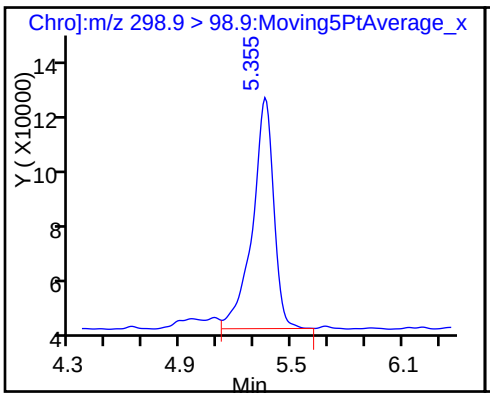
5 Perfluorobutanesulfonic acid



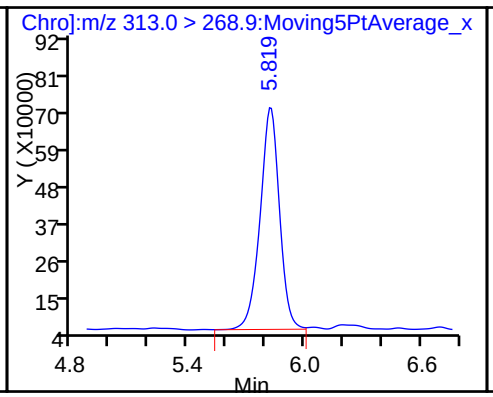
4 Perfluorobutane Sulfonate



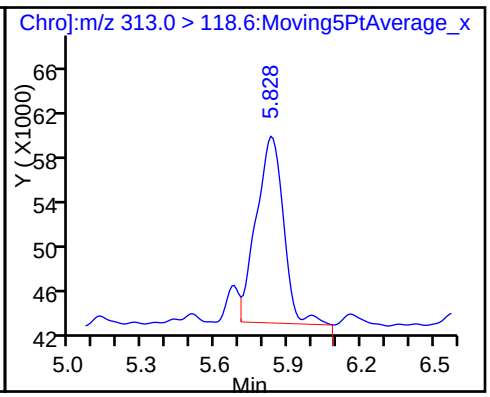
4 Perfluorobutane Sulfonate



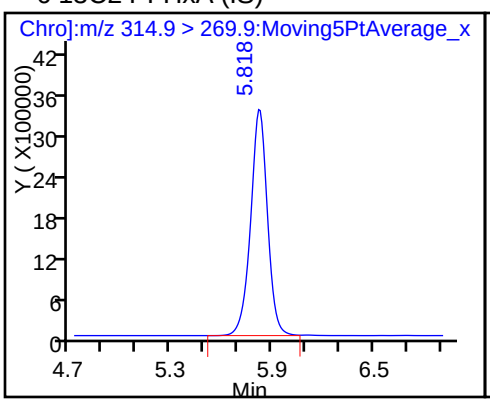
7 Perfluorohexanoic acid



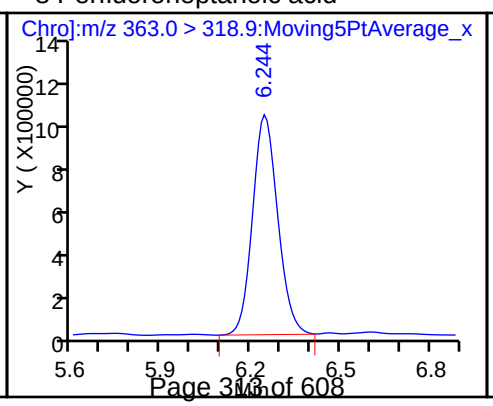
7 Perfluorohexanoic acid



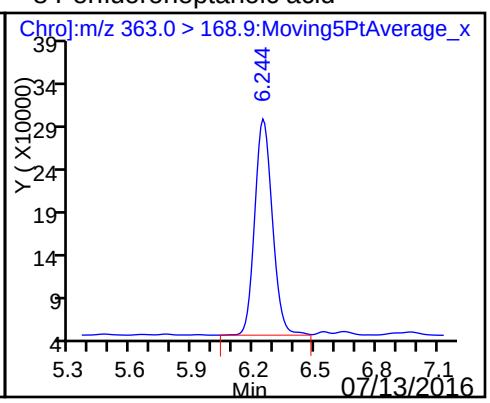
* 6 13C2 PFHxA (IS)



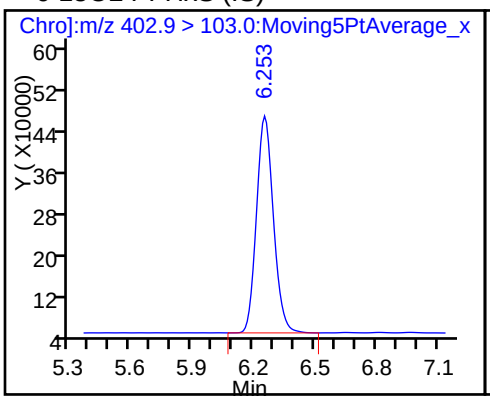
8 Perfluoroheptanoic acid



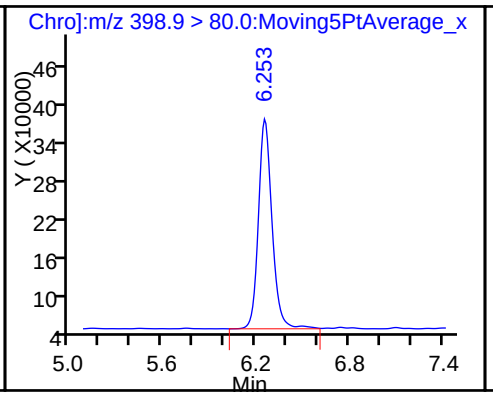
8 Perfluoroheptanoic acid



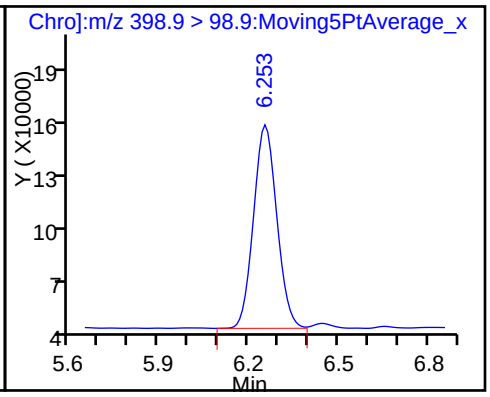
* 9 18O2 PFHxS (IS)



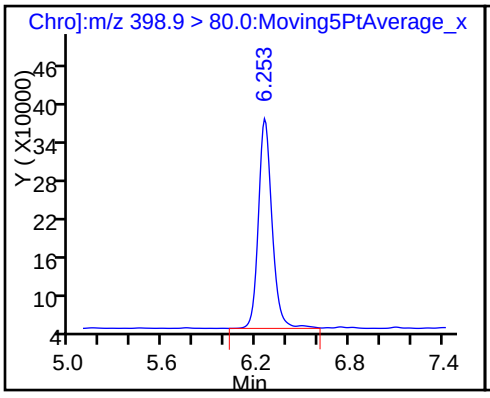
10 Perfluorohexane Sulfonate



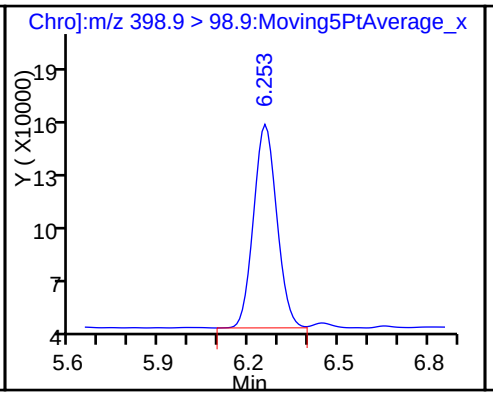
10 Perfluorohexane Sulfonate



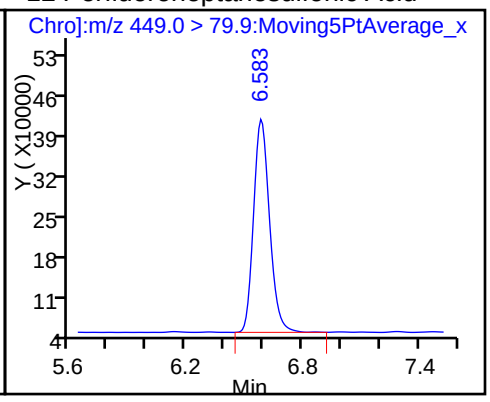
11 Perfluorohexanesulfonic acid



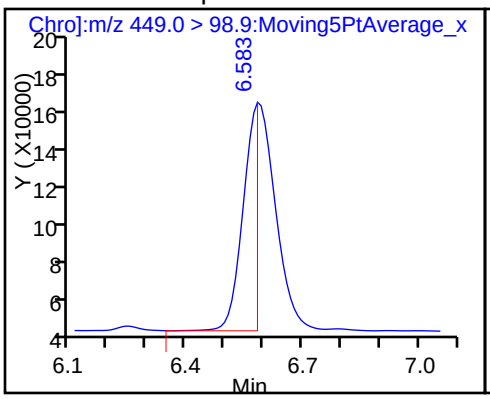
11 Perfluorohexanesulfonic acid



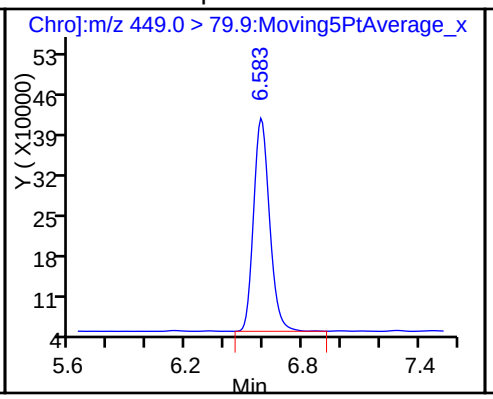
12 Perfluoroheptanesulfonic Acid



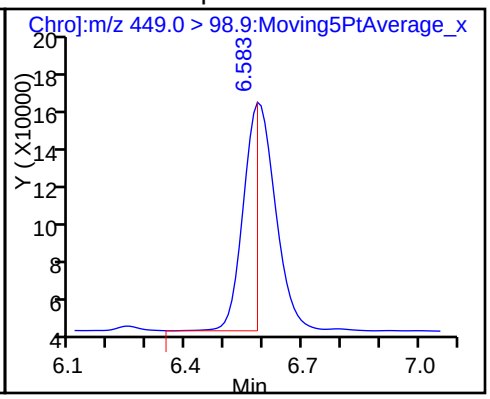
12 Perfluoroheptanesulfonic Acid



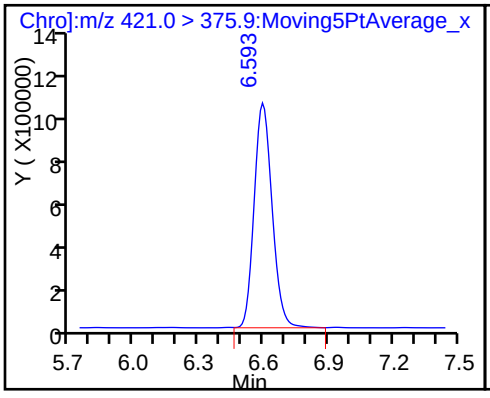
13 Perfluoroheptane Sulfonate



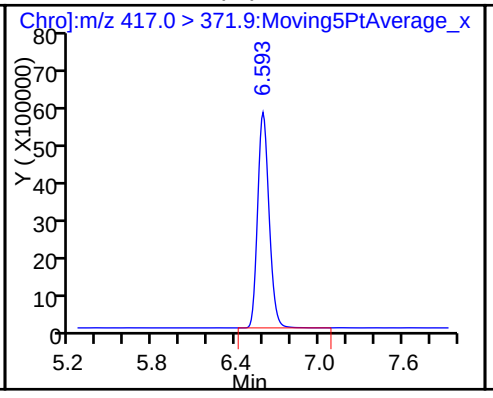
13 Perfluoroheptane Sulfonate



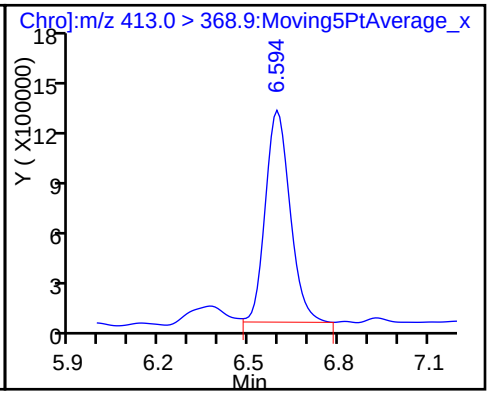
$ 14 13C8 PFOA



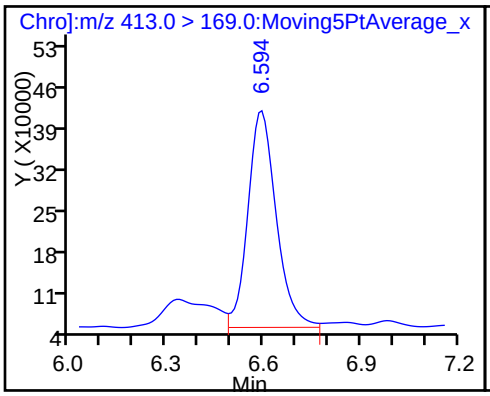
* 15 13C4 PFOA (IS)



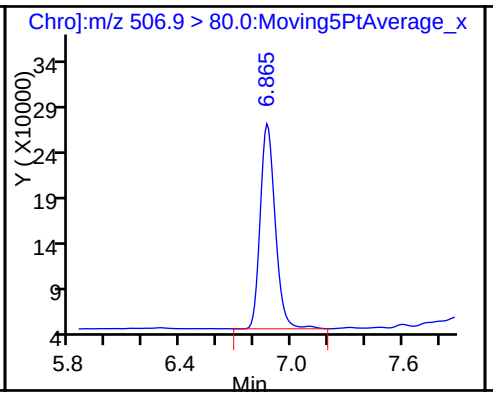
16 Perfluorooctanoic acid



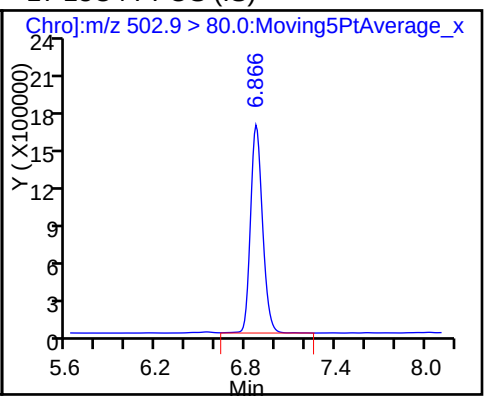
16 Perfluorooctanoic acid



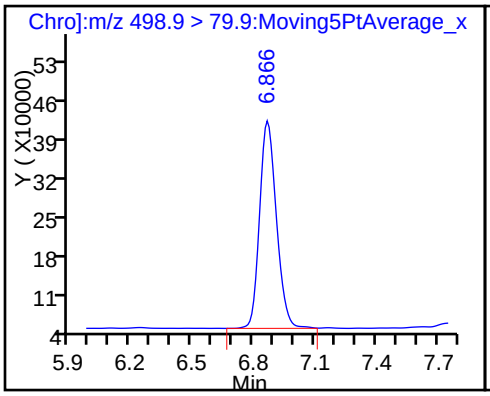
$ 18 13C8 PFOS



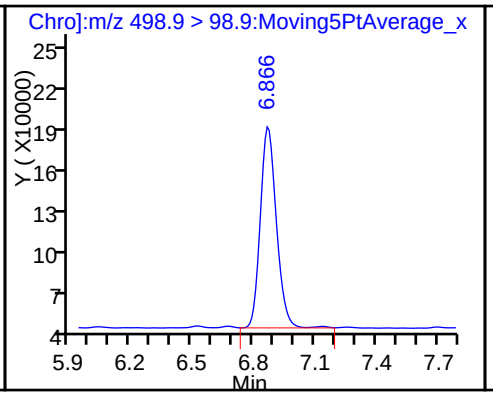
* 17 13C4 PFOS (IS)



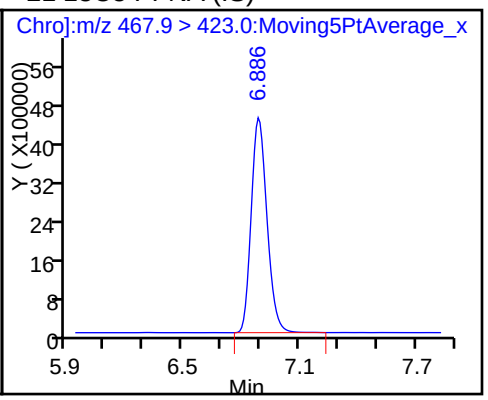
19 Perfluorooctane sulfonic acid



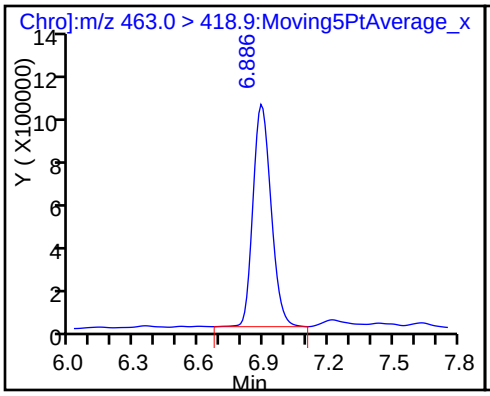
19 Perfluorooctane sulfonic acid



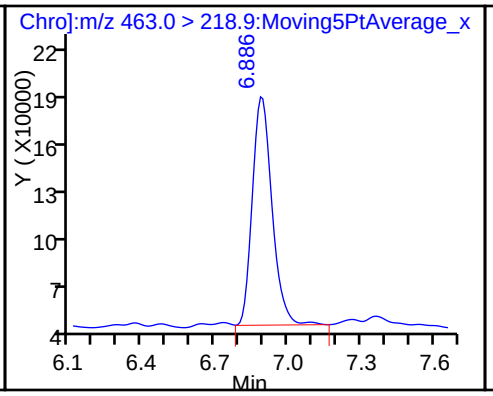
* 21 13C5 PFNA (IS)



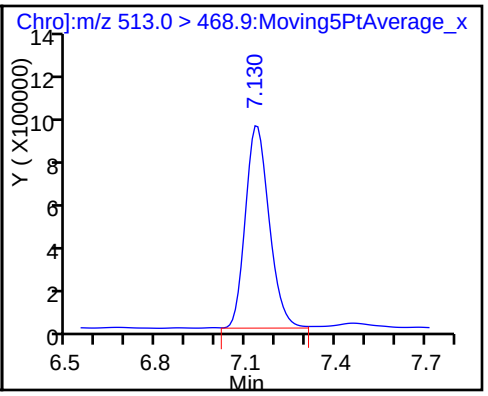
20 Perfluorononanoic acid



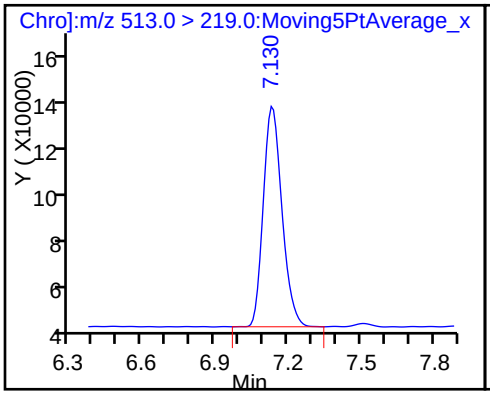
20 Perfluorononanoic acid



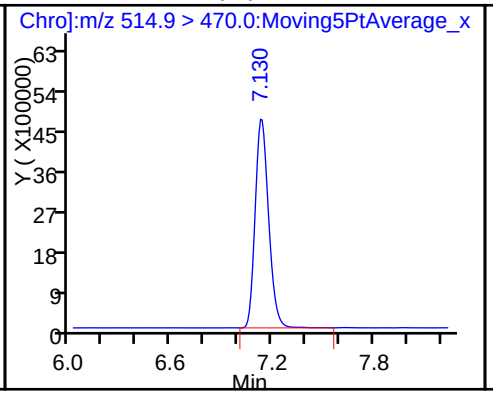
23 Perfluorodecanoic acid



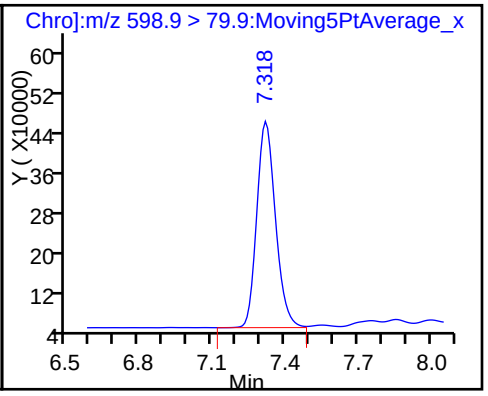
23 Perfluorodecanoic acid



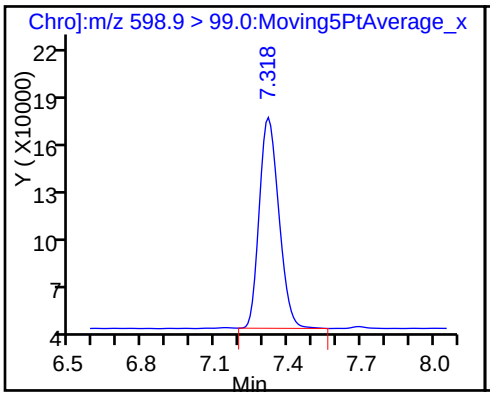
* 22 13C2 PFDA (IS)



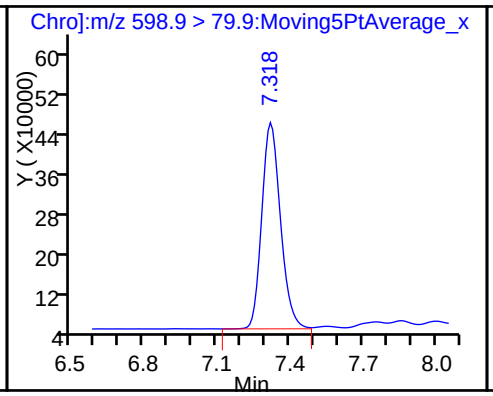
24 Perfluorodecane Sulfonic acid



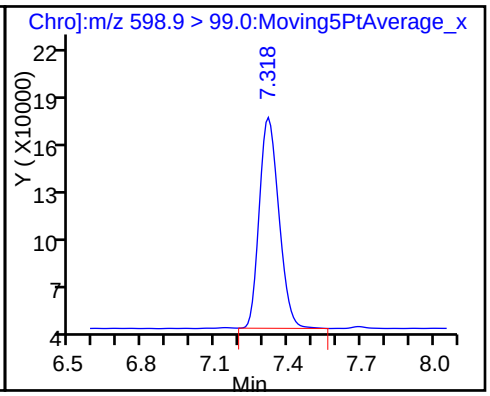
24 Perfluorodecane Sulfonic acid



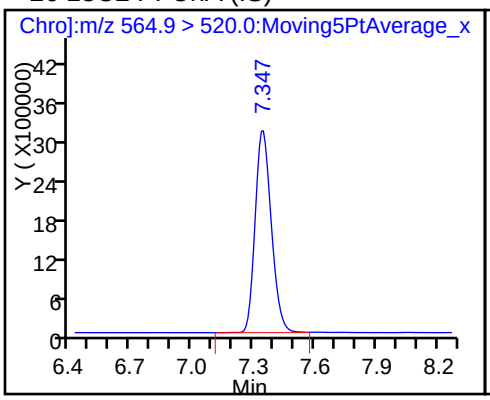
25 Perfluorodecane Sulfonate



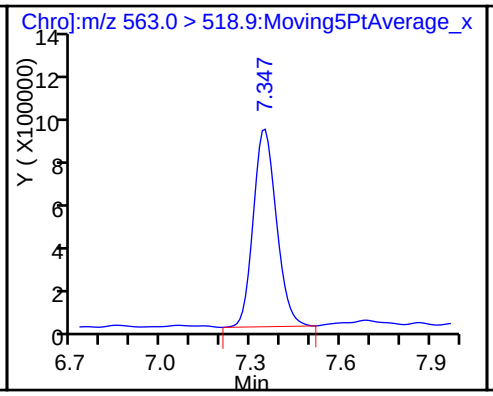
25 Perfluorodecane Sulfonate



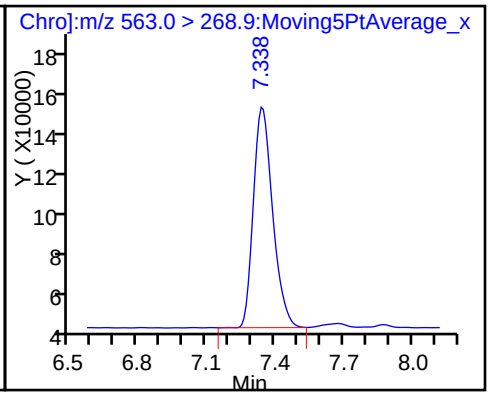
* 26 13C2 PFUnA (IS)



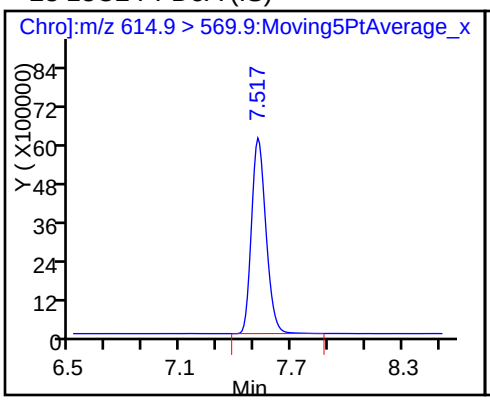
27 Perfluoroundecanoic acid



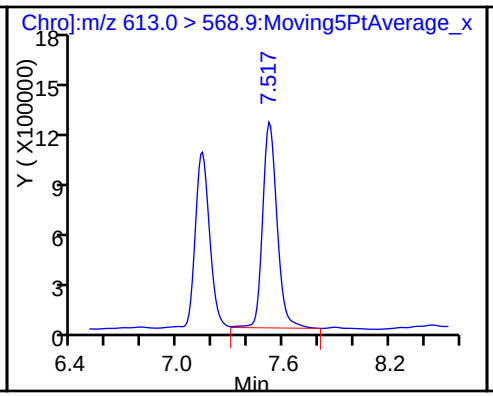
27 Perfluoroundecanoic acid



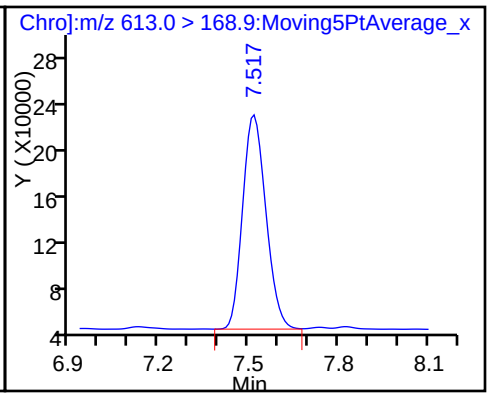
* 28 13C2 PFDoA (IS)



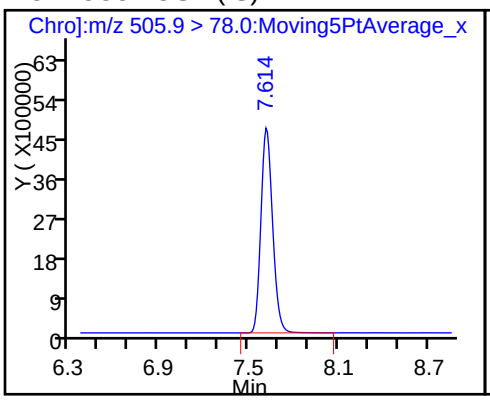
29 Perfluorododecanoic acid



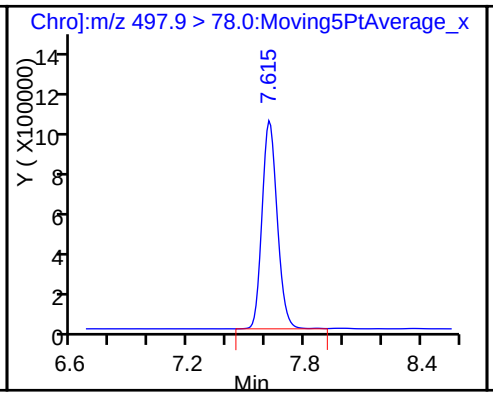
29 Perfluorododecanoic acid



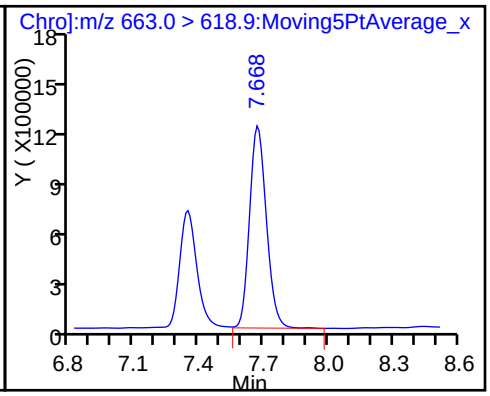
* 31 13C8 FOSA (IS)



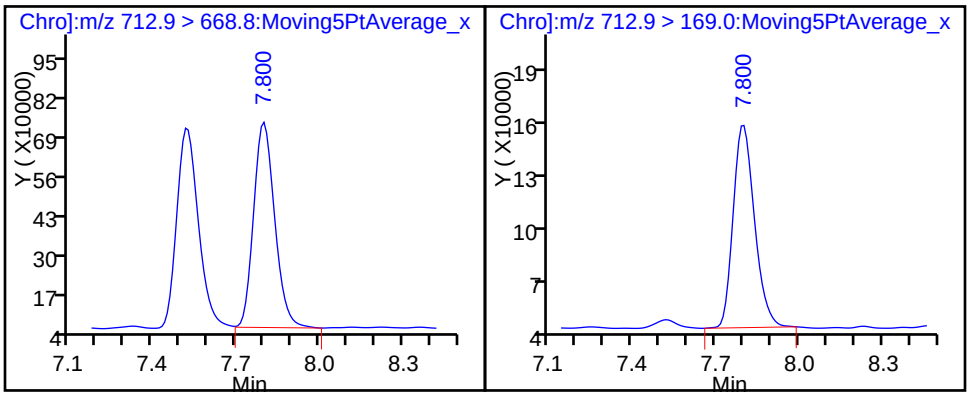
32 Perfluorooctane Sulfonamide



30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid

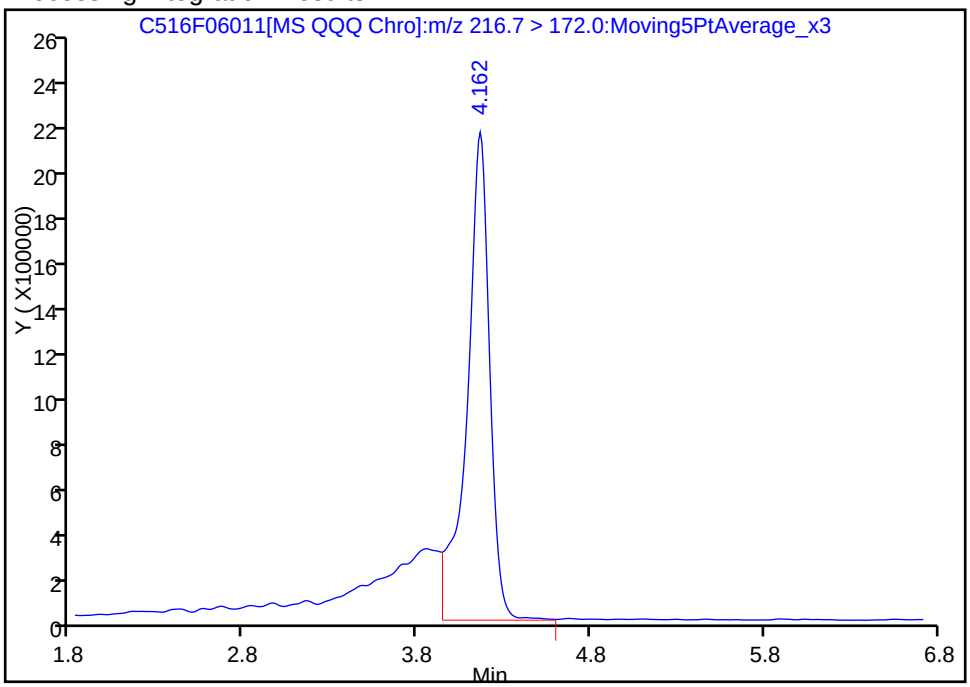
TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06011.d
Injection Date: 06-Jun-2016 15:26:53 Instrument ID: LC_LCMS5
Lims ID: STD0020
Client ID:
Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 6
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Method: 8321_PFC Limit Group: LC - PFC
Column: Detector MS QQQ

* 1 13C4 PFBA (IS), CAS: STL01003

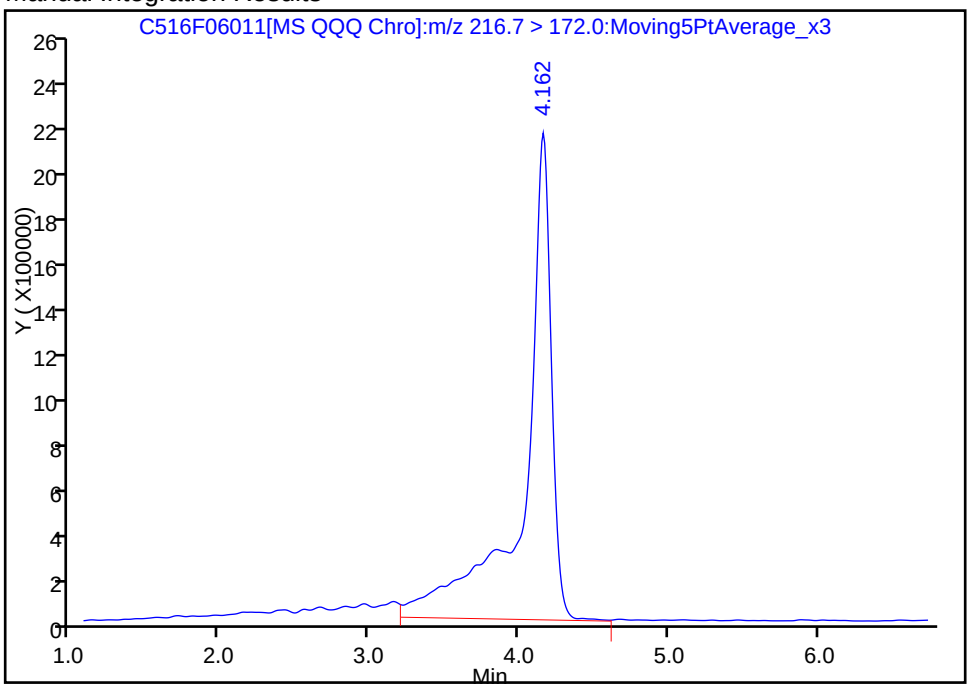
Processing Integration Results

RT: 4.16
Area: 18712233
Amount: 10.000000
Amount Units: ug/L



Manual Integration Results

RT: 4.16
Area: 26088805
Amount: 10.000000
Amount Units: ug/L



Reviewer: meyera, 07-Jun-2016 12:56:38
Audit Action: Manually Integrated
Audit Reason: Baseline

Manual Integration/User Assign Peak Report

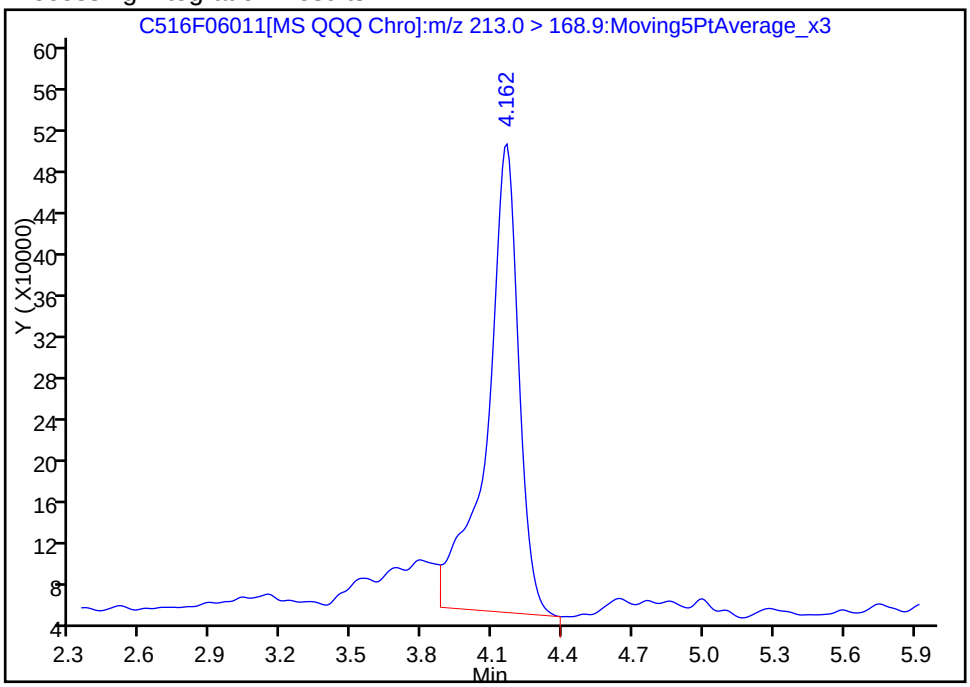
TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06011.d
Injection Date: 06-Jun-2016 15:26:53 Instrument ID: LC_LCMS5
Lims ID: STD0020
Client ID:
Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 6
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Method: 8321_PFC Limit Group: LC - PFC
Column: Detector MS QQQ

2 Perfluorobutyric acid, CAS: 375-22-4

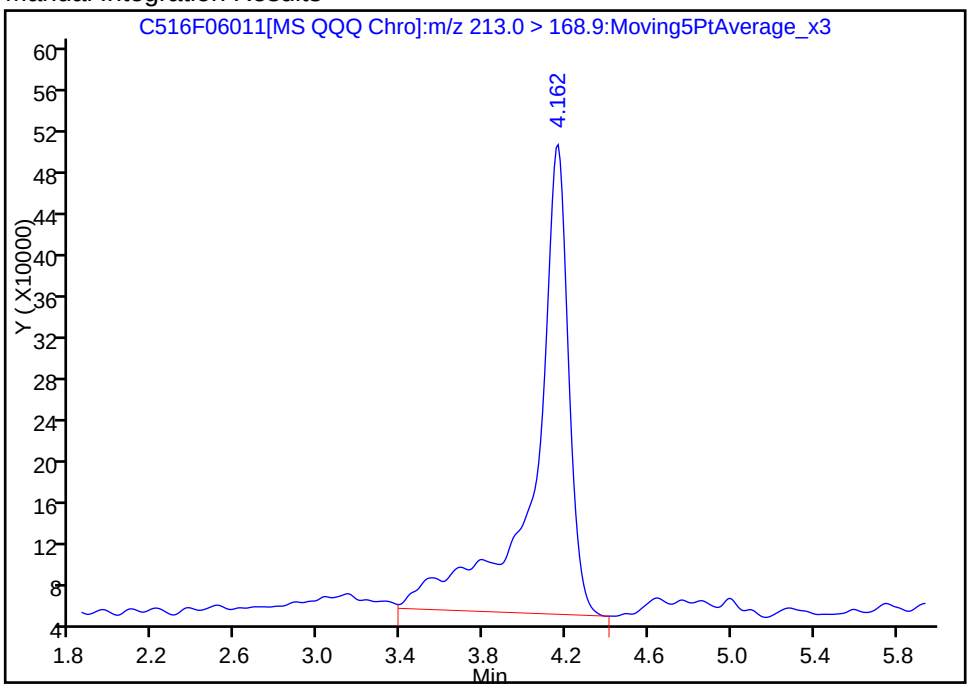
Processing Integration Results

RT: 4.16
Area: 4262347
Amount: 0.917918
Amount Units: ug/L



Manual Integration Results

RT: 4.16
Area: 5302668
Amount: 1.897623
Amount Units: ug/L



Reviewer: meyera, 07-Jun-2016 12:56:38
Audit Action: Manually Integrated
Audit Reason: Baseline

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06012.d
Lims ID: STD0050
Client ID:
Sample Type: IC Calib Level: 5
Inject. Date: 06-Jun-2016 15:39:12 ALS Bottle#: 0 Worklist Smp#: 7
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: STD 0050, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 07-Jun-2016 14:09:00 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK003

First Level Reviewer: meyera Date: 07-Jun-2016 12:57:14

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.143	4.162	-0.019		30058395	10.0			
2 Perfluorobutyric acid									M
213.0 > 168.9	4.153	4.162	-0.009	1.002	15646483	4.85			M
3 Perfluoropentanoic acid									
263.0 > 218.9	5.232	5.232	0.0	0.898	14121680	5.12			
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.355	5.364	-0.009	0.855	5710734	4.49			
298.9 > 98.9	5.355	5.364	-0.009	0.855	1741559		3.28(2.57-2.57)		
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.355	5.364	-0.009	0.855	5710734	4.49			
298.9 > 98.9	5.355	5.364	-0.009	0.855	1741559		3.28(1.80-3.35)		
7 Perfluorohexanoic acid									
313.0 > 268.9	5.828	5.819	0.009	1.000	10659437	4.80			
313.0 > 118.6	5.838	5.819	0.019	1.002	355910		29.95(34.05-63.23)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.828	5.818	0.010		23405456	10.0			
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.263	6.244	0.019	0.947	14292973	5.04			
363.0 > 168.9	6.263	6.244	0.019	0.947	3943282		3.62(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.263	6.253	0.010		2306359	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.272	6.253	0.019	1.002	4705477	4.95			R
398.9 > 98.9	6.272	6.253	0.019	1.002	1732235		2.72(1.30-2.41)		
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.272	6.253	0.019	1.002	4705477	4.95			
398.9 > 98.9	6.272	6.253	0.019	1.002	1732235		2.72(1.85-1.85)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.602	6.583	0.019	0.959	5403580	4.77			
449.0 > 98.9	6.602	6.583	0.019	0.959	1549855		3.49(0.00-0.00)		
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.602	6.583	0.019	0.959	5403580	4.77			
449.0 > 98.9	6.602	6.583	0.019	0.959	1549855		3.49(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.612	6.593	0.019	1.000	14613722	5.54			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.612	6.593	0.019		32493562	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.613	6.594	0.019	1.000	17252348	5.06			
413.0 > 169.0	6.613	6.594	0.019	1.000	5369504		3.21(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.884	6.865	0.019	1.000	2952684	5.15			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.885	6.866	0.019		8937624	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.885	6.866	0.019	1.000	5678428	5.15			R
498.9 > 98.9	6.885	6.866	0.019	1.000	2095239		2.71(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.905	6.886	0.019		23993318	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.905	6.886	0.019	1.000	14058059	5.20			
463.0 > 218.9	6.905	6.886	0.019	1.000	1958954		7.18(5.59-10.38)		
23 Perfluorodecanoic acid									
513.0 > 468.9	7.149	7.130	0.019	1.000	13455719	5.26			
513.0 > 219.0	7.149	7.130	0.019	1.000	1185162		11.35(10.49-19.48)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.149	7.130	0.019		25302155	10.0			
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.328	7.318	0.010	1.064	5632521	4.85			
598.9 > 99.0	7.328	7.318	0.010	1.064	1578945		3.57(2.84-2.84)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.328	7.318	0.010	1.064	5632521	4.85			
598.9 > 99.0	7.328	7.318	0.010	1.064	1578945		3.57(1.99-3.69)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.357	7.347	0.010		16303477	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.357	7.347	0.010	1.000	11414147	4.91			R
563.0 > 268.9	7.357	7.347	0.010	1.000	1382008		8.26(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.526	7.517	0.009		34205513	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.526	7.517	0.009	1.000	17657166	5.00			
613.0 > 168.9	7.526	7.517	0.009	1.000	2239694		7.88(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.624	7.614	0.010		24753508	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.624	7.615	0.009	1.000	13895071	5.17			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.677	7.668	0.009	1.020	16402113	5.12			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.810	7.800	0.010	1.038	9715521	4.80			
712.9 > 169.0	7.810	7.800	0.010	1.038	1482345		6.55(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Review Flags

M - Manually Integrated

Reagents:

PFC-LCS_00078	Amount Added:	10.00	Units: uL
PFC-IS_00021	Amount Added:	20.00	Units: uL
PFC_Surr_00021	Amount Added:	10.00	Units: uL

Report Date: 07-Jun-2016 14:09:01 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06012.d

Injection Date: 06-Jun-2016 15:39:12 Instrument ID: LC_LCMS5

Lims ID: STD0050

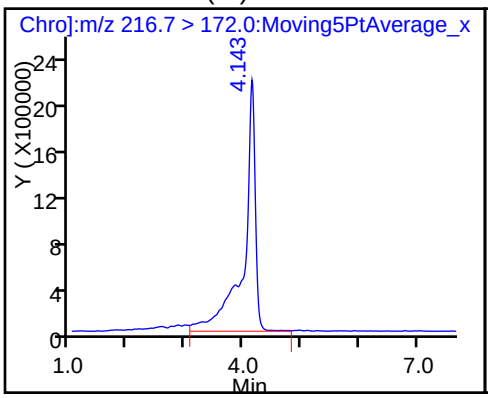
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 7

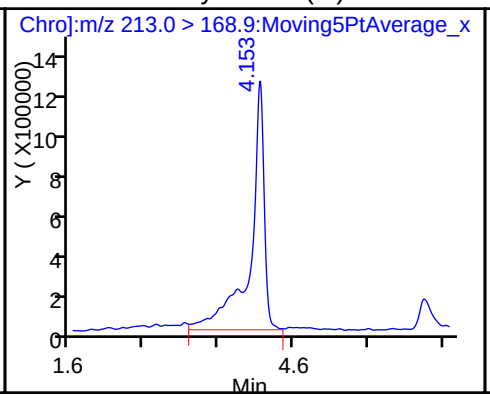
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

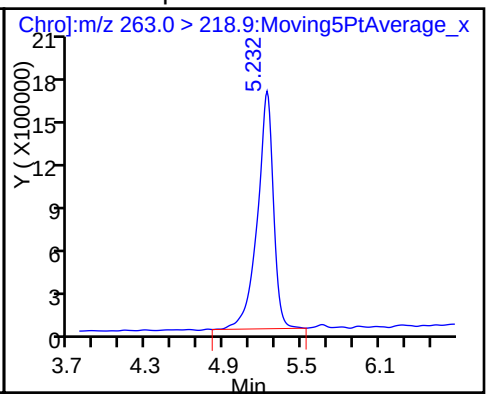
* 1 13C4 PFBA (IS)



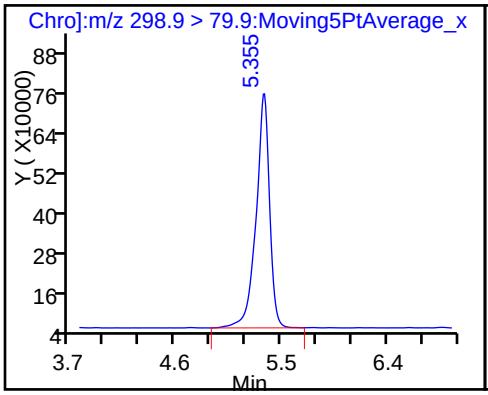
2 Perfluorobutyric acid (M)



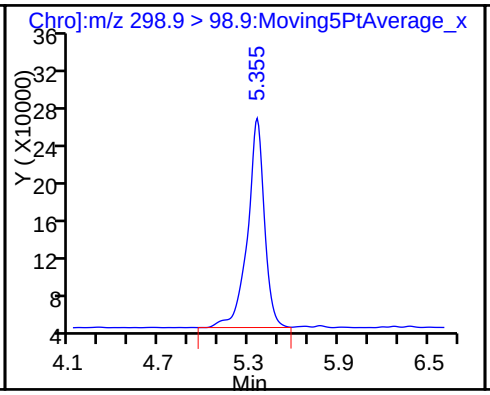
3 Perfluoropentanoic acid



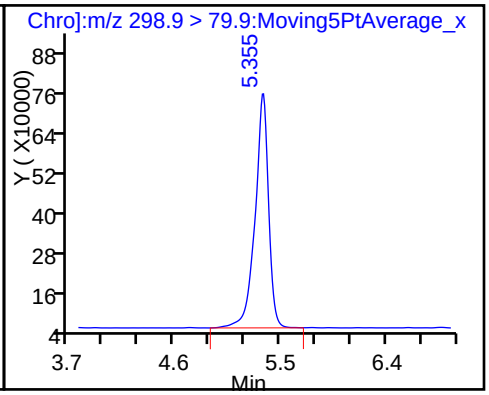
5 Perfluorobutanesulfonic acid



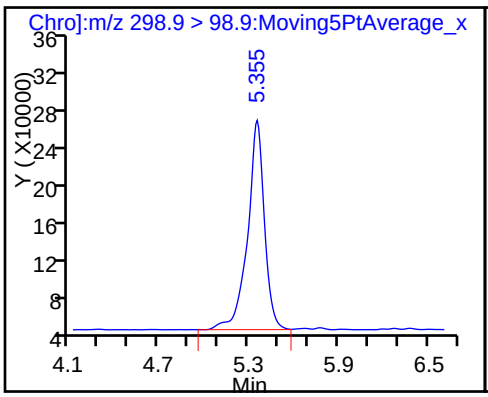
5 Perfluorobutanesulfonic acid



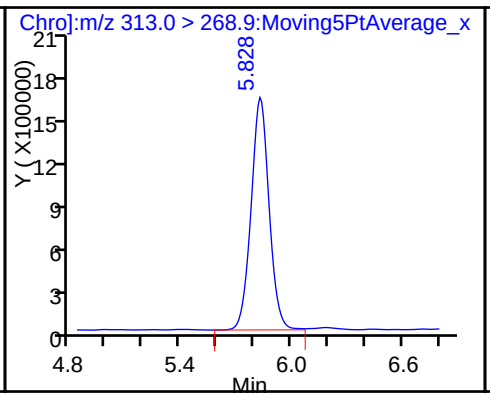
4 Perfluorobutane Sulfonate



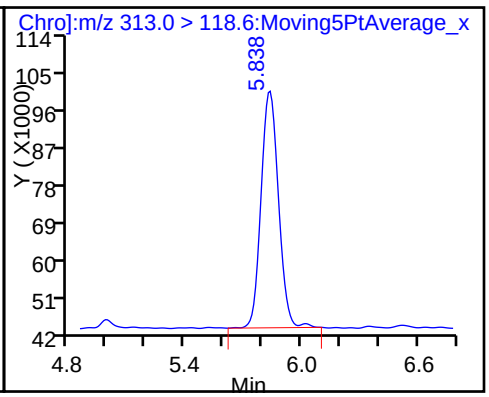
4 Perfluorobutane Sulfonate



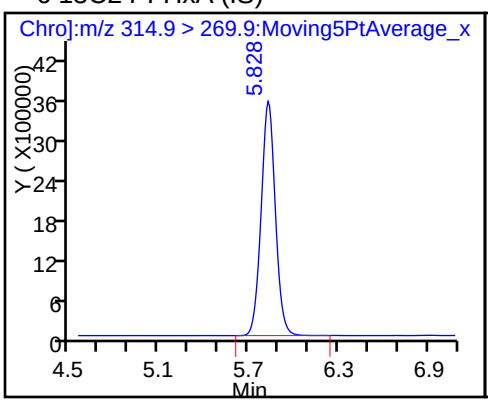
7 Perfluorohexanoic acid



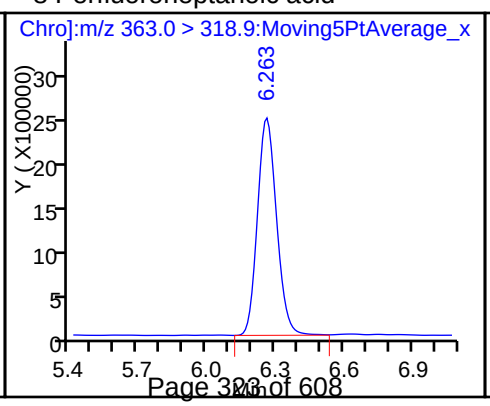
7 Perfluorohexanoic acid



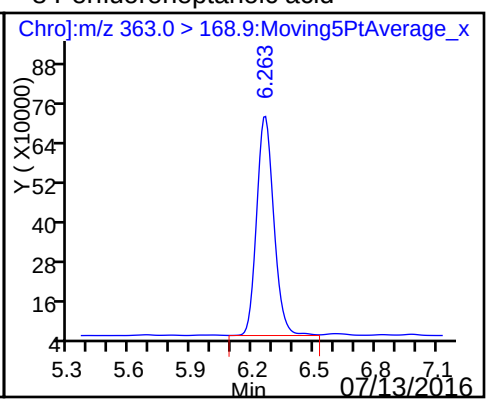
* 6 13C2 PFHxA (IS)



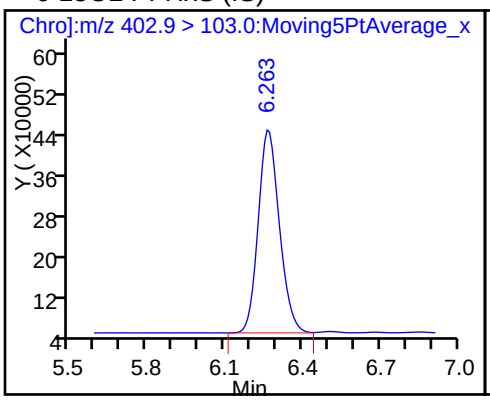
8 Perfluoroheptanoic acid



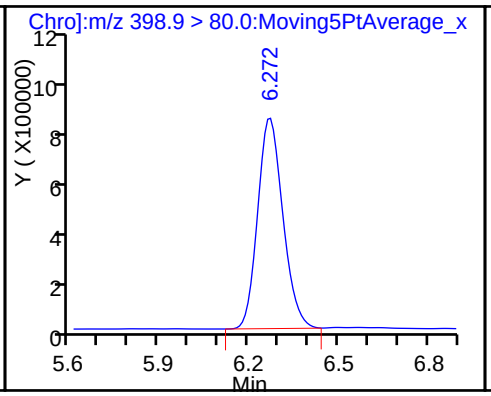
8 Perfluoroheptanoic acid



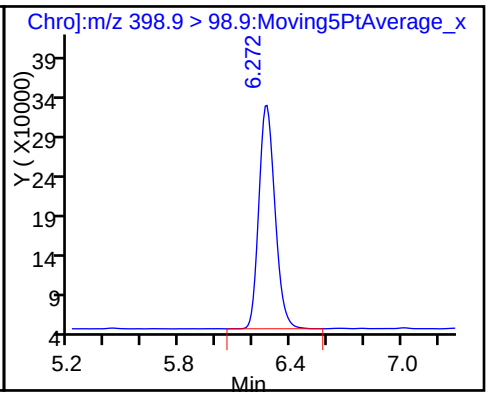
* 9 18O2 PFHxS (IS)



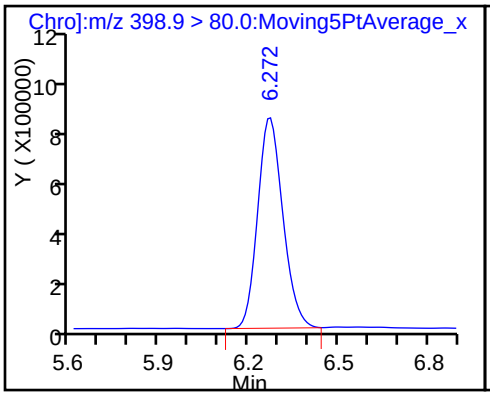
10 Perfluorohexane Sulfonate



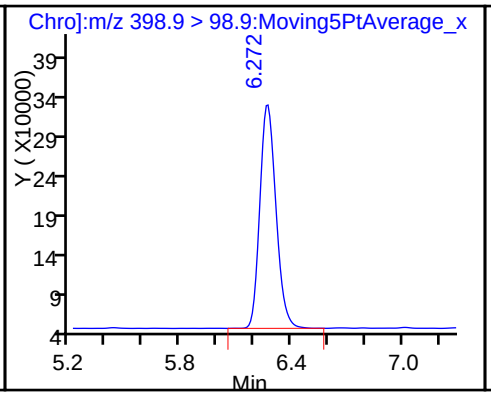
10 Perfluorohexane Sulfonate



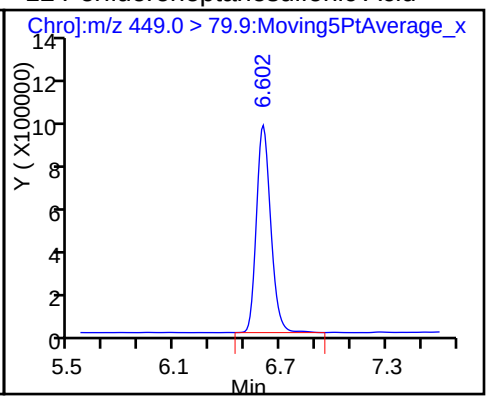
11 Perfluorohexanesulfonic acid



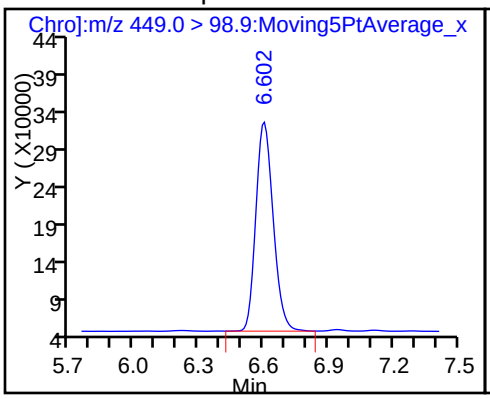
11 Perfluorohexanesulfonic acid



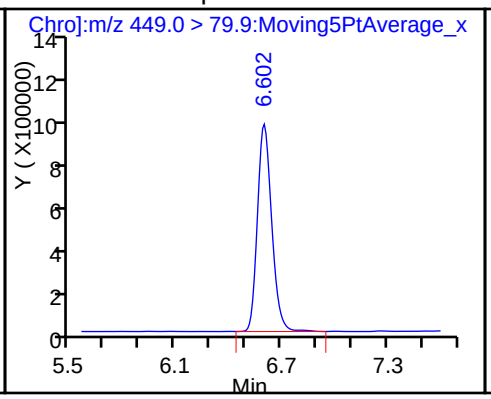
12 Perfluoroheptanesulfonic Acid



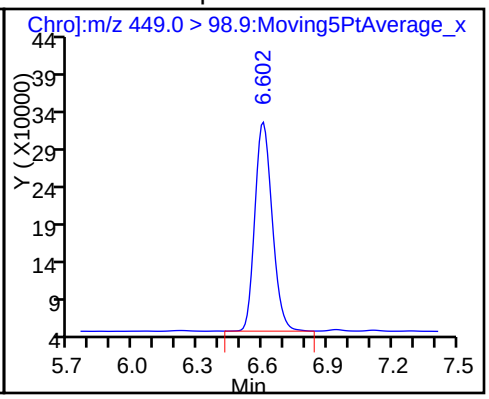
12 Perfluoroheptanesulfonic Acid



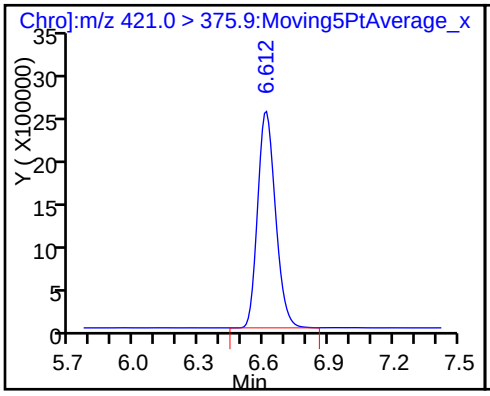
13 Perfluoroheptane Sulfonate



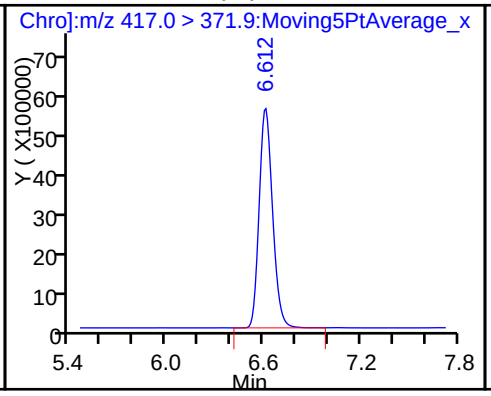
13 Perfluoroheptane Sulfonate



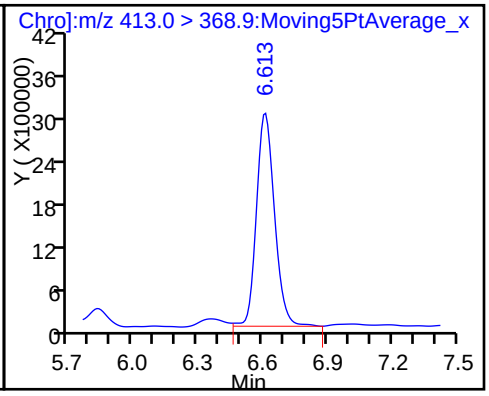
$ 14 13C8 PFOA



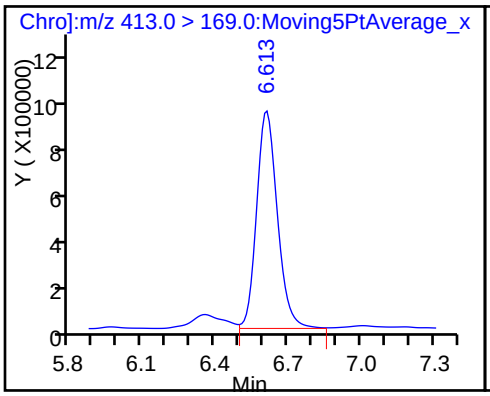
* 15 13C4 PFOA (IS)



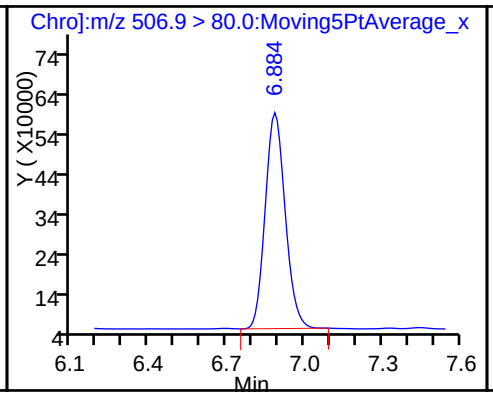
16 Perfluorooctanoic acid



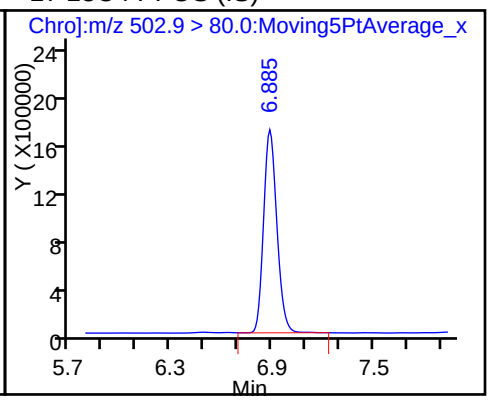
16 Perfluorooctanoic acid



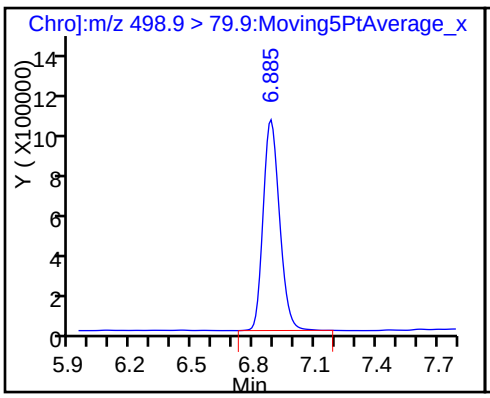
$ 18 13C8 PFOS



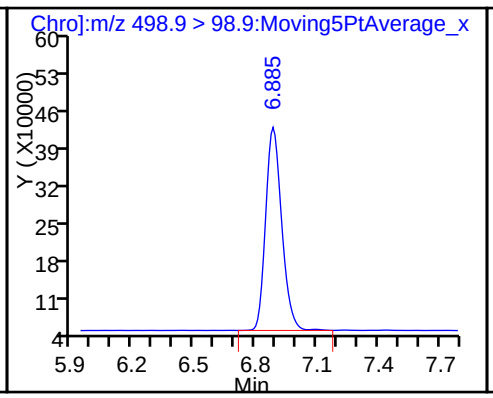
* 17 13C4 PFOS (IS)



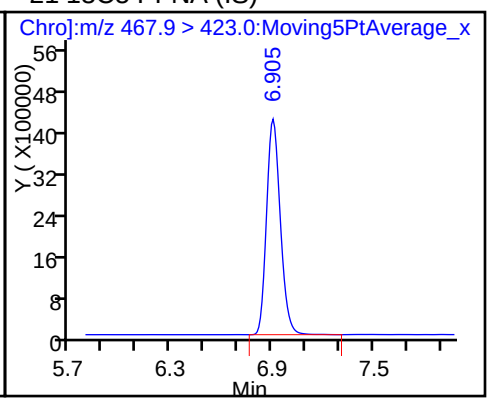
19 Perfluorooctane sulfonic acid



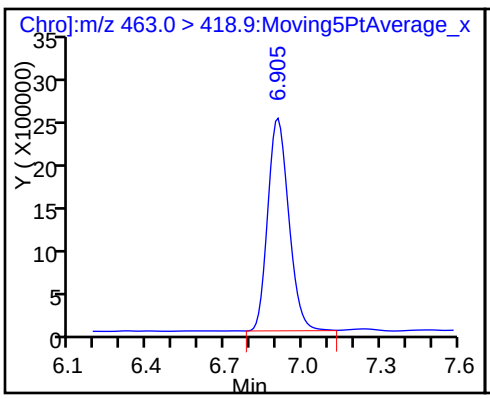
19 Perfluorooctane sulfonic acid



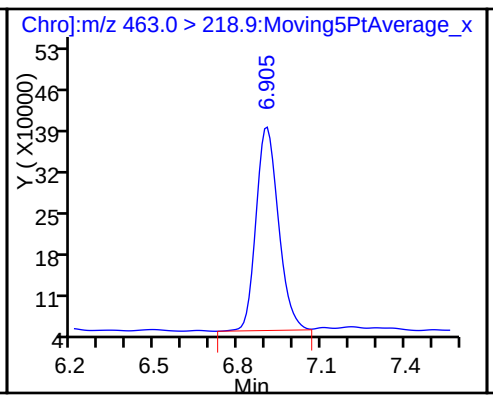
* 21 13C5 PFNA (IS)



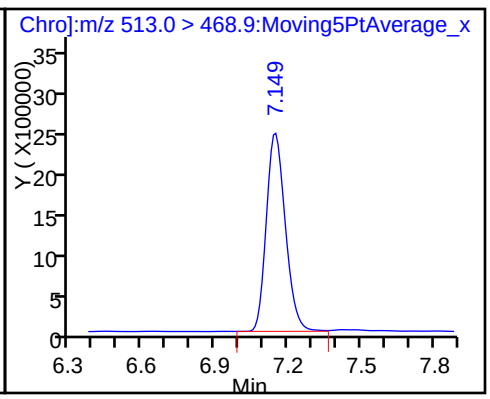
20 Perfluorononanoic acid



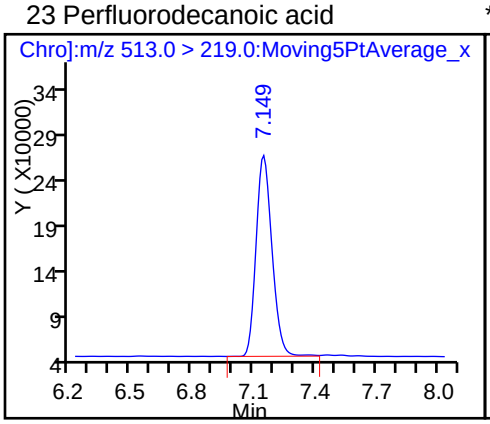
20 Perfluorononanoic acid



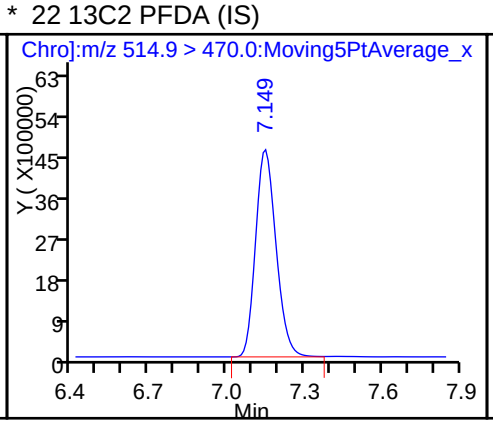
23 Perfluorodecanoic acid



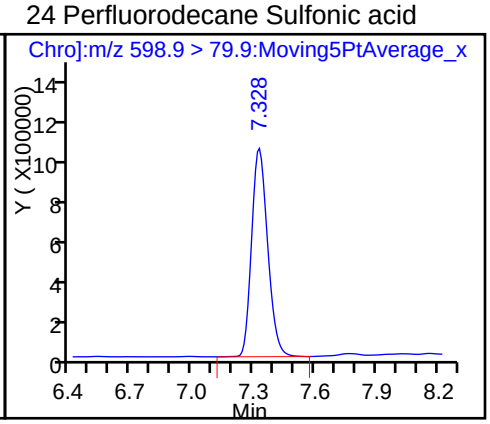
23 Perfluorodecanoic acid



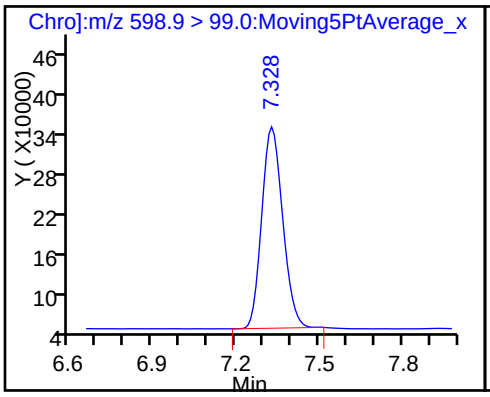
* 22 13C2 PFDA (IS)



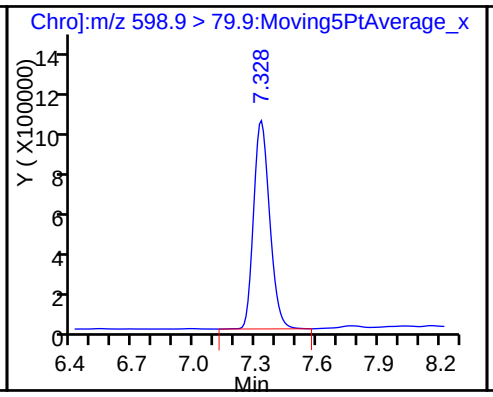
24 Perfluorodecane Sulfonic acid



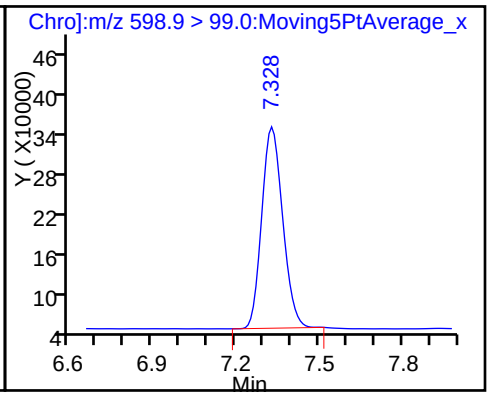
24 Perfluorodecane Sulfonic acid



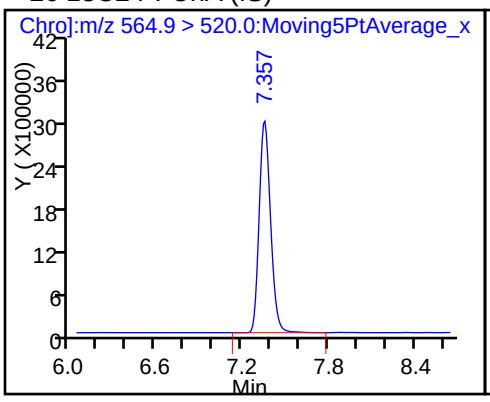
25 Perfluorodecane Sulfonate



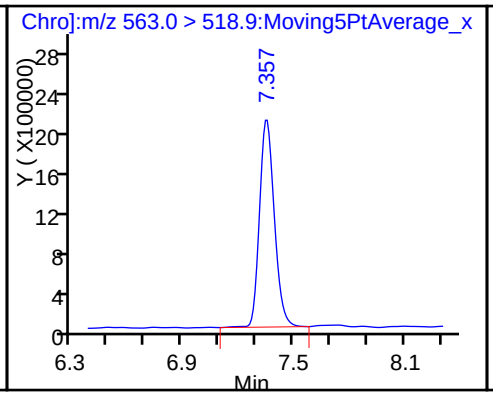
25 Perfluorodecane Sulfonate



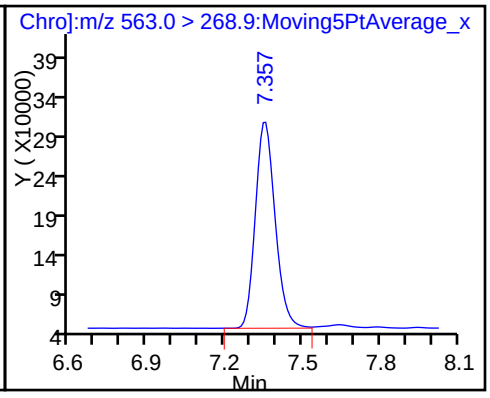
* 26 13C2 PFUnA (IS)



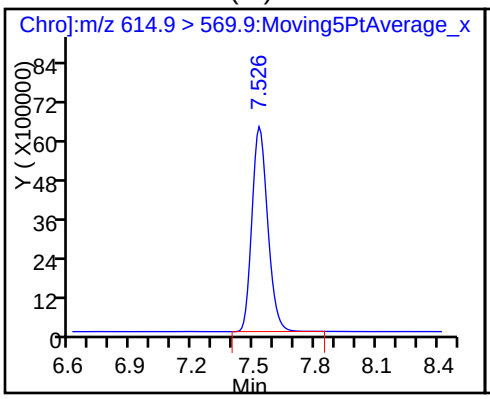
27 Perfluoroundecanoic acid



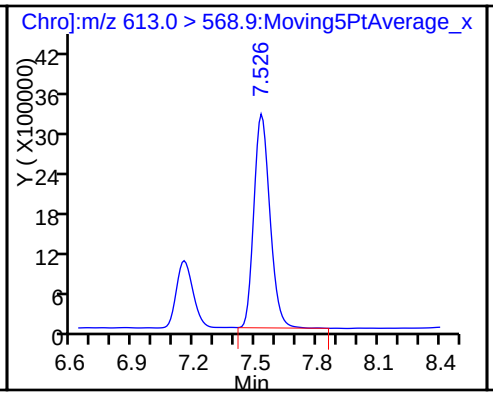
27 Perfluoroundecanoic acid



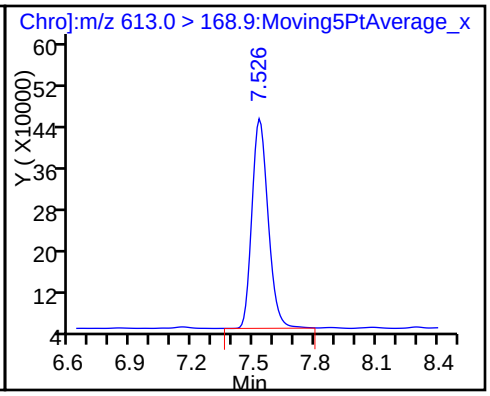
* 28 13C2 PFDoA (IS)



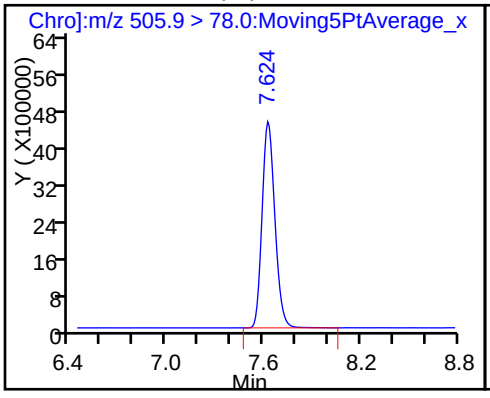
29 Perfluorododecanoic acid



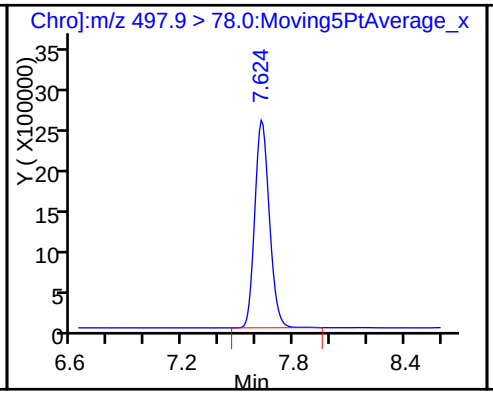
29 Perfluorododecanoic acid



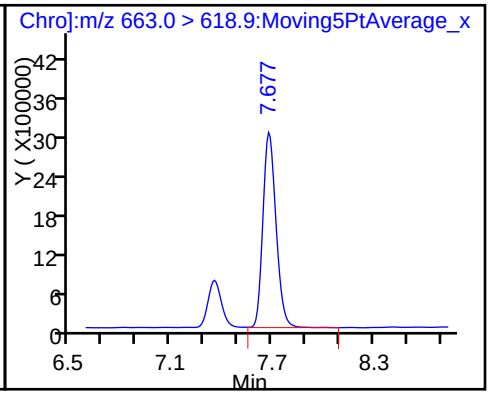
* 31 13C8 FOSA (IS)



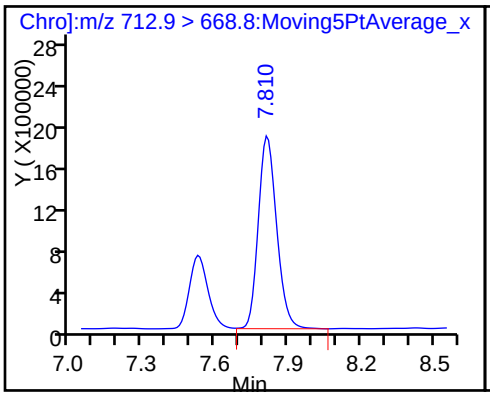
32 Perfluorooctane Sulfonamide



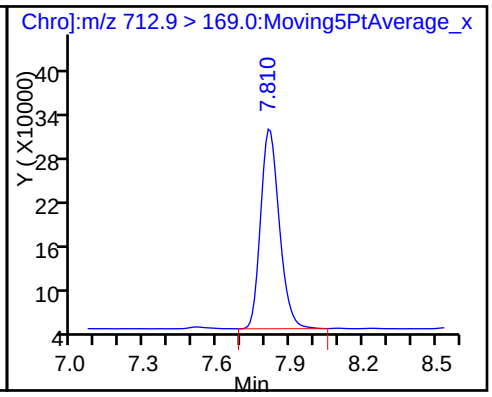
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



Manual Integration/User Assign Peak Report

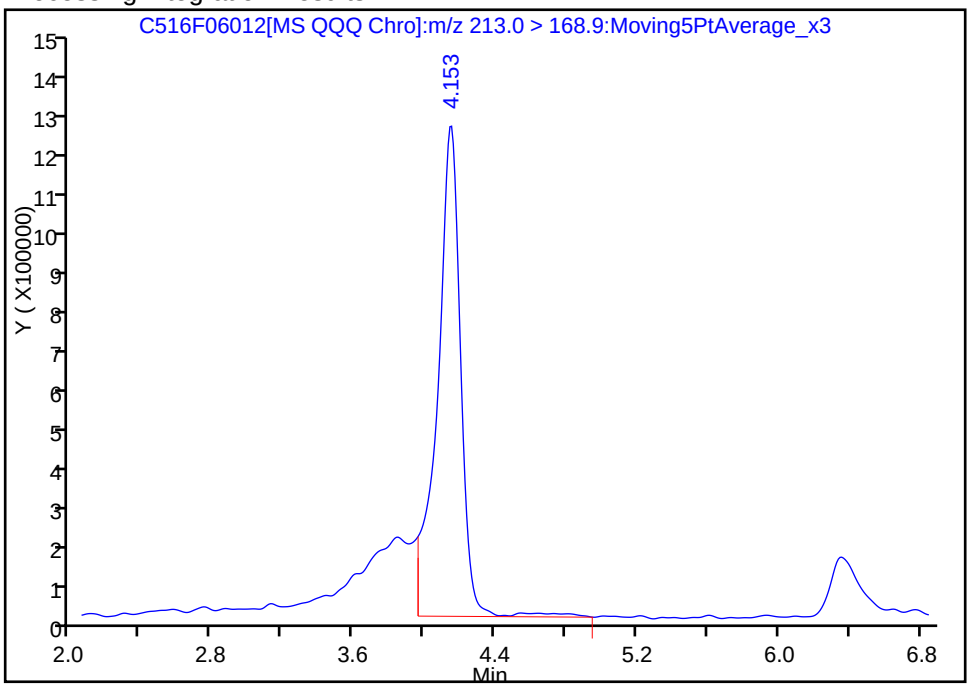
TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06012.d
Injection Date: 06-Jun-2016 15:39:12 Instrument ID: LC_LCMS5
Lims ID: STD0050
Client ID:
Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 7
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Method: 8321_PFC Limit Group: LC - PFC
Column: Detector MS QQQ

2 Perfluorobutyric acid, CAS: 375-22-4

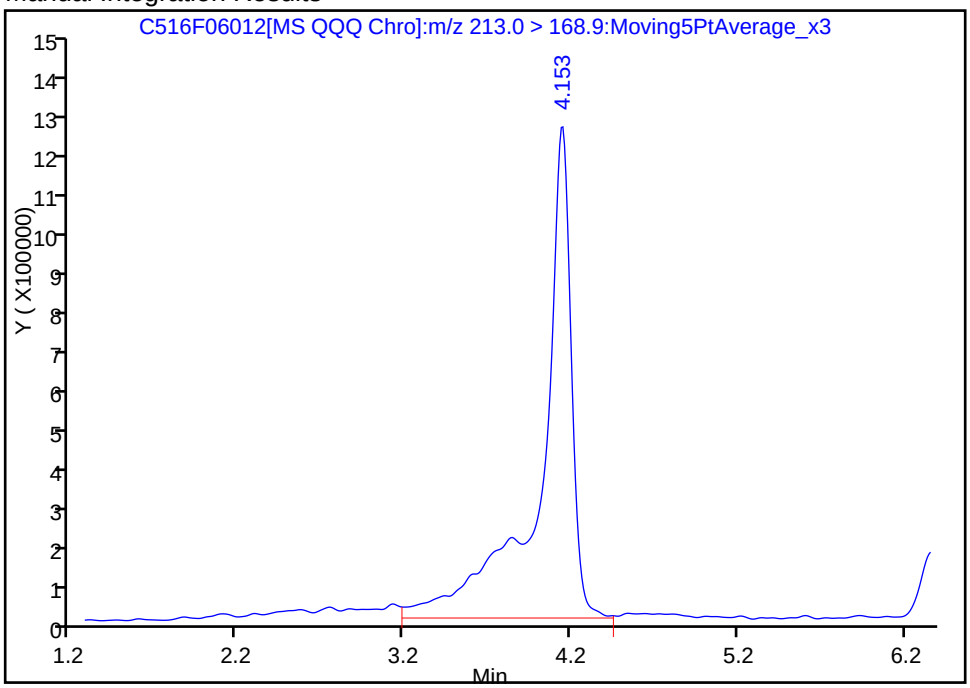
Processing Integration Results

RT: 4.15
Area: 10960038
Amount: 3.437278
Amount Units: ug/L



Manual Integration Results

RT: 4.15
Area: 15646483
Amount: 4.854483
Amount Units: ug/L



Reviewer: meyera, 07-Jun-2016 12:57:14
Audit Action: Manually Integrated
Audit Reason: Baseline

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06013.d
Lims ID: STD0100
Client ID:
Sample Type: IC Calib Level: 6
Inject. Date: 06-Jun-2016 15:51:29 ALS Bottle#: 0 Worklist Smp#: 8
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: STD 0100, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 07-Jun-2016 14:09:06 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK003

First Level Reviewer: meyera Date: 07-Jun-2016 12:57:30

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.143	4.162	-0.019		28249772	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	4.143	4.162	-0.019	1.000	30314584	10.0			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.213	5.232	-0.019	0.896	26550357	10.3			
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.345	5.364	-0.019	0.855	10998014	8.11			
298.9 > 98.9	5.345	5.364	-0.019	0.855	3490279		3.15(2.57-2.57)		
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.345	5.364	-0.019	0.855	10998014	8.11			
298.9 > 98.9	5.345	5.364	-0.019	0.855	3490279		3.15(1.80-3.35)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.818	5.818	0.0		21981575	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.819	5.819	0.0	1.000	20841959	10.0			
313.0 > 118.6	5.819	5.819	0.0	1.000	627599		33.21(34.05-63.23)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.244	6.244	0.0	0.947	27517800	10.8			
363.0 > 168.9	6.244	6.244	0.0	0.947	7342155		3.75(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.253	6.253	0.0		2455924	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.253	6.253	0.0	1.000	8927761	8.88			R
398.9 > 98.9	6.253	6.253	0.0	1.000	3322393		2.69(1.30-2.41)		
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.253	6.253	0.0	1.000	8927761	8.88			
398.9 > 98.9	6.253	6.253	0.0	1.000	3322393		2.69(1.85-1.85)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.583	6.583	0.0	0.960	10232509	9.69			
449.0 > 98.9	6.583	6.583	0.0	0.960	3190245		3.21(0.00-0.00)		
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.583	6.583	0.0	0.960	10232509	9.69			
449.0 > 98.9	6.583	6.583	0.0	0.960	3190245		3.21(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.593	6.593	0.0	1.000	24662701	10.4			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.593	6.593	0.0		29389195	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.594	6.594	0.0	1.000	32009782	10.5			
413.0 > 169.0	6.594	6.594	0.0	1.000	9374363		3.41(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.856	6.865	-0.009	1.000	5353658	10.1			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.856	6.866	-0.010		8329164	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.857	6.866	-0.009	1.000	10470143	10.3			R
498.9 > 98.9	6.857	6.866	-0.009	1.000	3923550		2.67(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.876	6.886	-0.010		22181375	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.877	6.886	-0.010	1.000	25021117	10.1			
463.0 > 218.9	6.877	6.886	-0.010	1.000	3962775		6.31(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.121	7.130	-0.009		24664744	10.0			
23 Perfluorodecanoic acid									R
513.0 > 468.9	7.121	7.130	-0.009	1.000	25238466	10.2			R
513.0 > 219.0	7.121	7.130	-0.009	1.000	2479122		10.18(10.49-19.48)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.309	7.318	-0.009	1.066	10758635	9.98			
598.9 > 99.0	7.309	7.318	-0.009	1.066	3209764		3.35(2.84-2.84)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.309	7.318	-0.009	1.066	10758635	9.98			
598.9 > 99.0	7.309	7.318	-0.009	1.066	3209764		3.35(1.99-3.69)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.338	7.347	-0.009		14532277	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.329	7.347	-0.019	0.999	21285381	10.3			R
563.0 > 268.9	7.338	7.347	-0.009	1.000	2714333		7.84(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.507	7.517	-0.010		31864705	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.507	7.517	-0.010	1.000	33735988	10.3			
613.0 > 168.9	7.507	7.517	-0.010	1.000	4286959		7.87(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.605	7.614	-0.009		23840347	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.605	7.615	-0.010	1.000	26107207	10.1			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.658	7.668	-0.010	1.020	30556604	10.3			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.791	7.800	-0.009	1.038	18737310	9.95			
712.9 > 169.0	7.791	7.800	-0.009	1.038	2736267		6.85(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Reagents:

PFC-LCS_00078	Amount Added:	20.00	Units: uL
PFC-IS_00021	Amount Added:	20.00	Units: uL
PFC_Surr_00021	Amount Added:	20.00	Units: uL

Report Date: 07-Jun-2016 14:09:07 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06013.d

Injection Date: 06-Jun-2016 15:51:29 Instrument ID: LC_LCMS5

Lims ID: STD0100

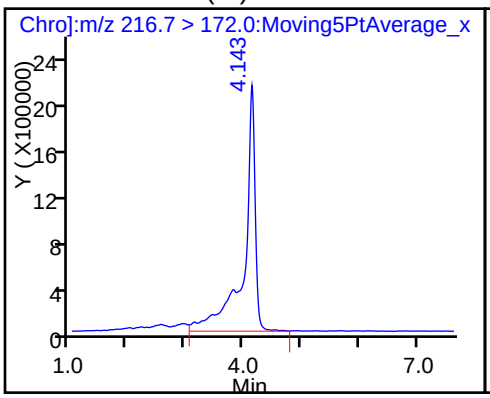
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 8

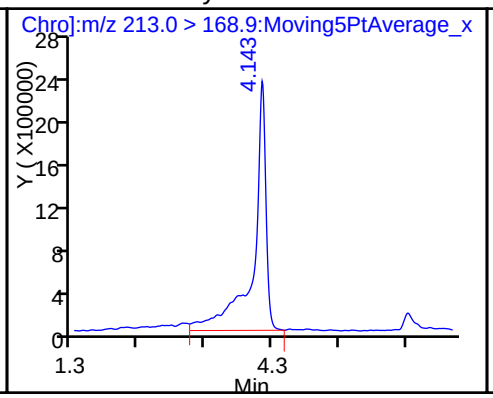
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

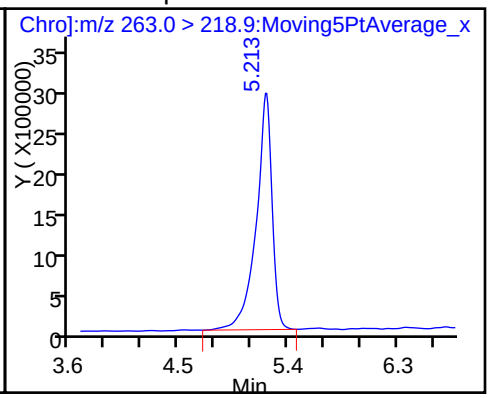
* 1 13C4 PFBA (IS)



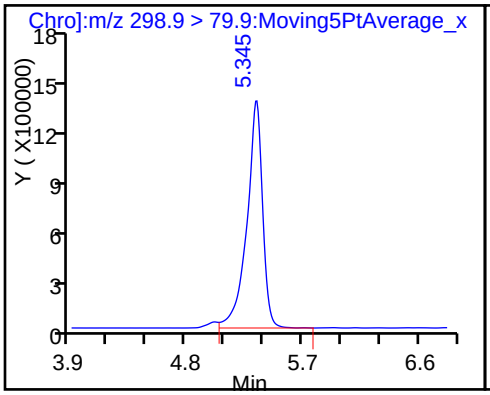
2 Perfluorobutyric acid



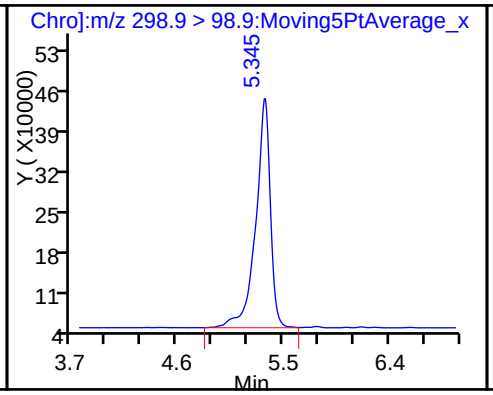
3 Perfluoropentanoic acid



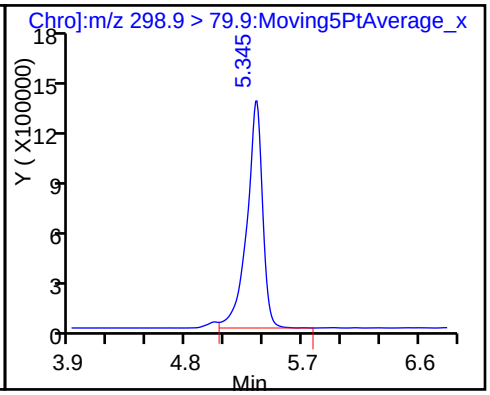
5 Perfluorobutanesulfonic acid



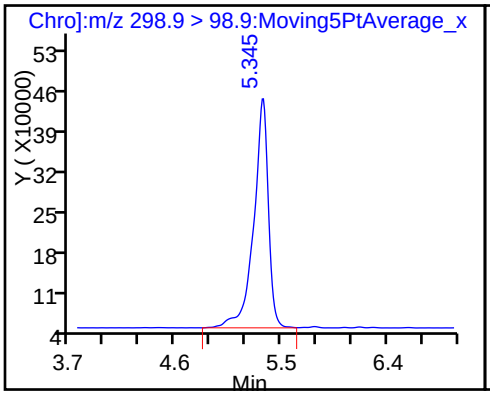
5 Perfluorobutanesulfonic acid



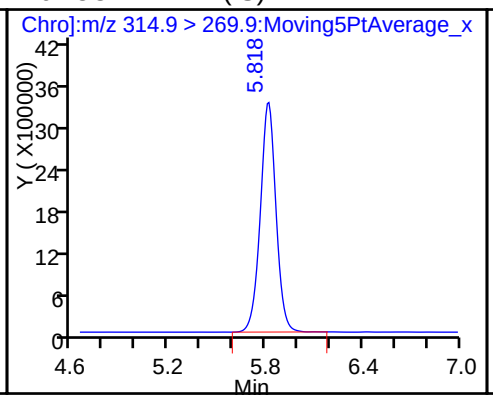
4 Perfluorobutane Sulfonate



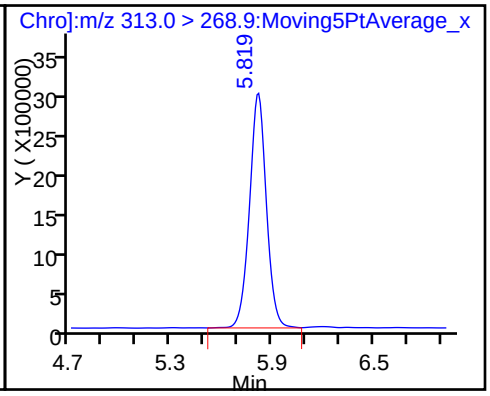
4 Perfluorobutane Sulfonate



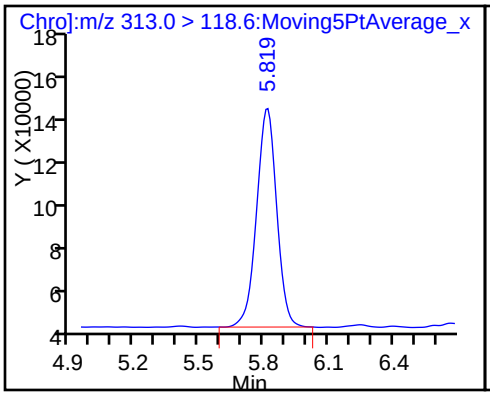
* 6 13C2 PFHxA (IS)



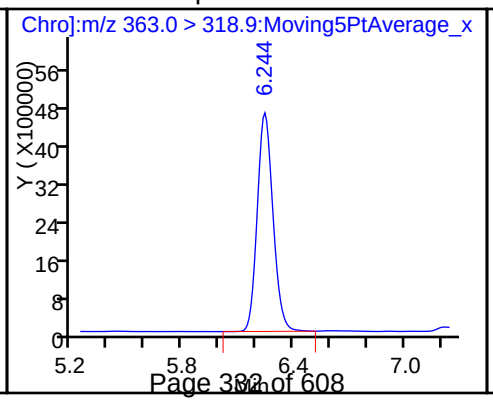
7 Perfluorohexanoic acid



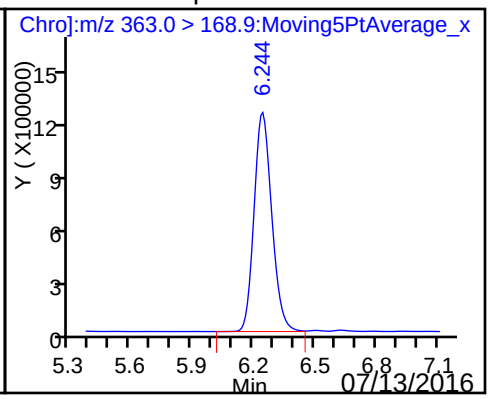
7 Perfluorohexanoic acid



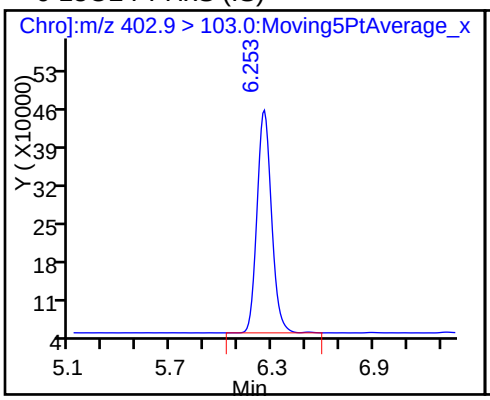
8 Perfluoroheptanoic acid



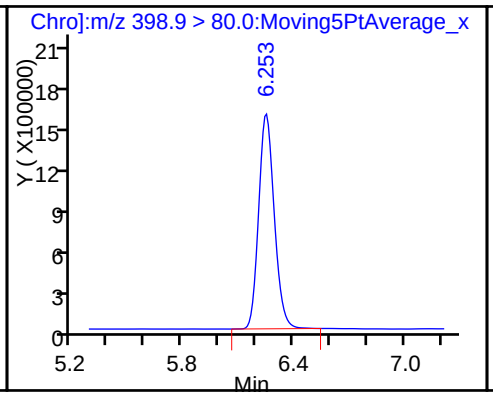
8 Perfluoroheptanoic acid



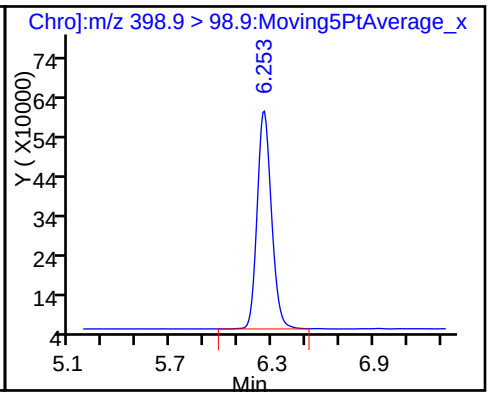
* 9 18O2 PFHxS (IS)



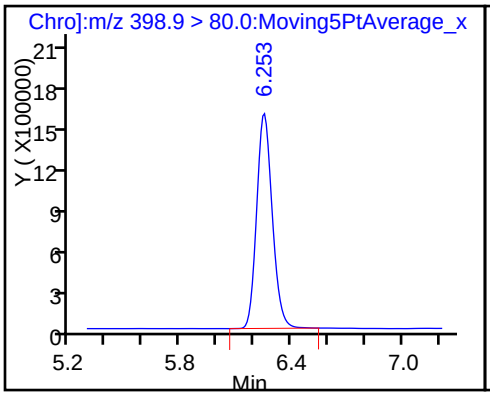
10 Perfluorohexane Sulfonate



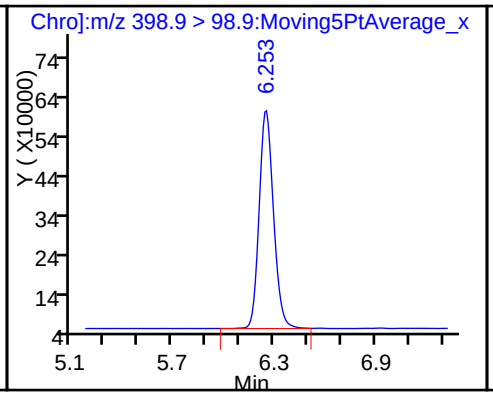
10 Perfluorohexane Sulfonate



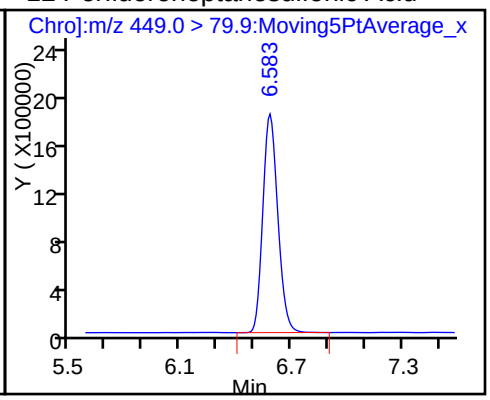
11 Perfluorohexanesulfonic acid



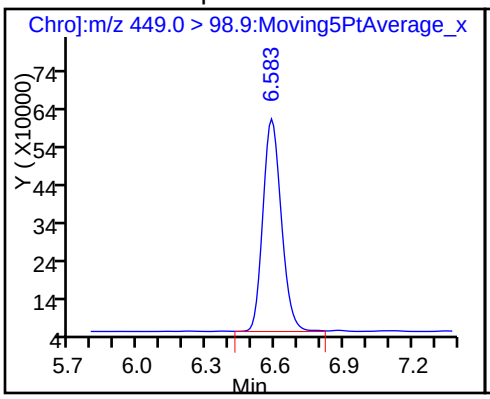
11 Perfluorohexanesulfonic acid



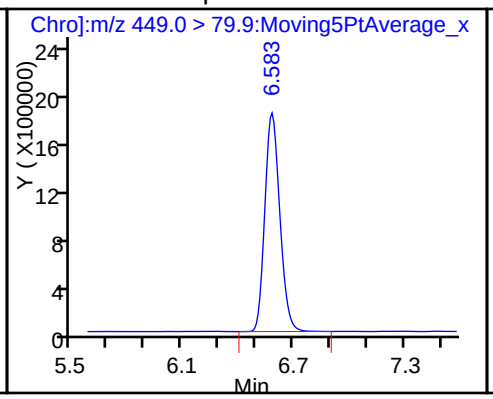
12 Perfluoroheptanesulfonic Acid



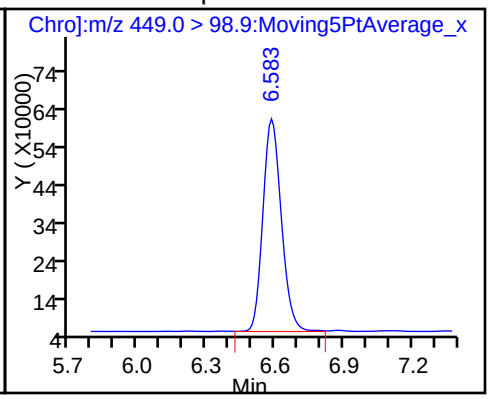
12 Perfluoroheptanesulfonic Acid



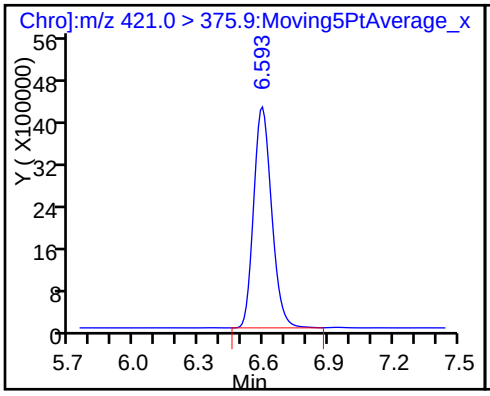
13 Perfluoroheptane Sulfonate



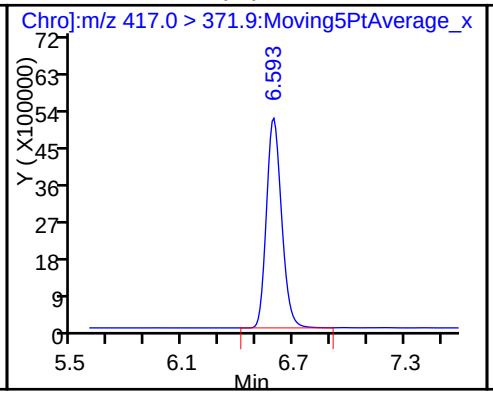
13 Perfluoroheptane Sulfonate



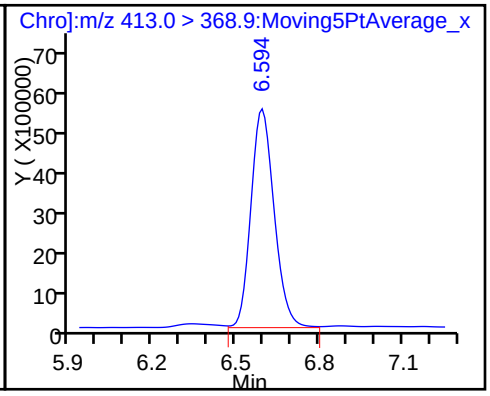
$ 14 13C8 PFOA



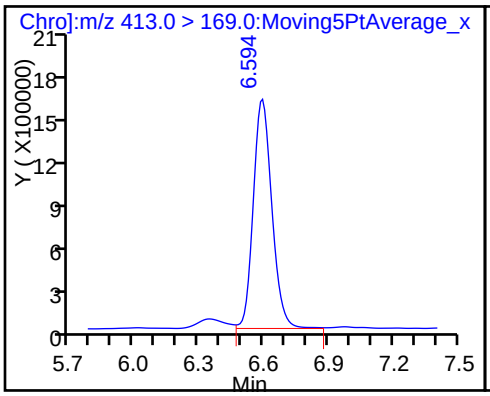
* 15 13C4 PFOA (IS)



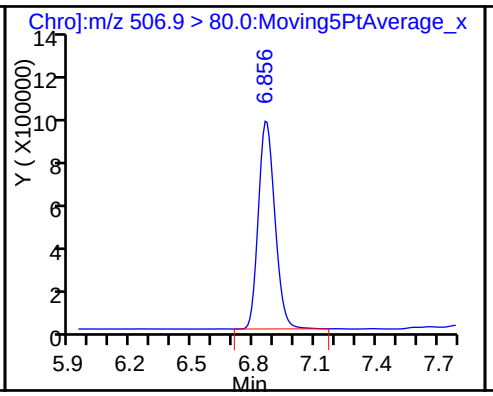
16 Perfluorooctanoic acid



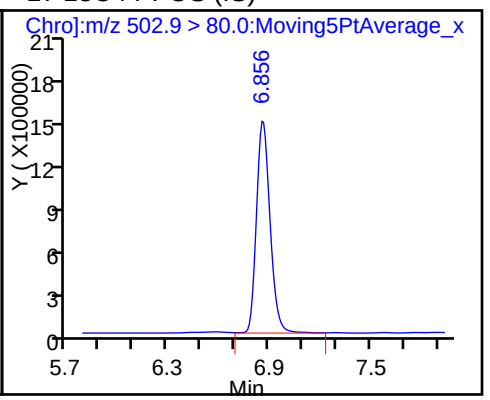
16 Perfluorooctanoic acid



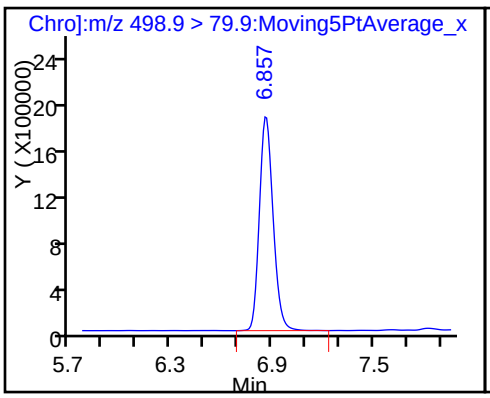
$ 18 13C8 PFOS



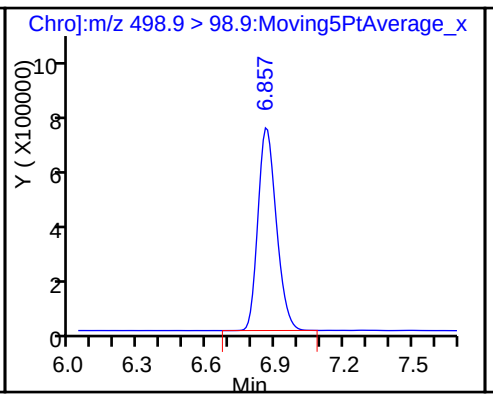
* 17 13C4 PFOS (IS)



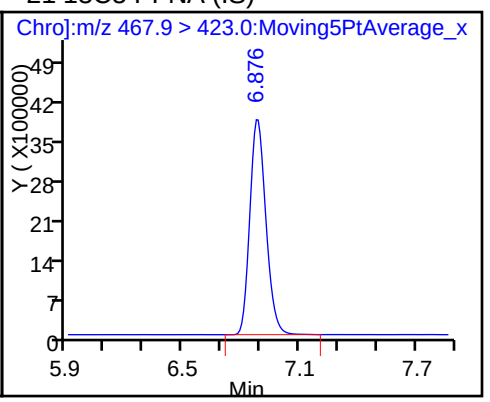
19 Perfluorooctane sulfonic acid



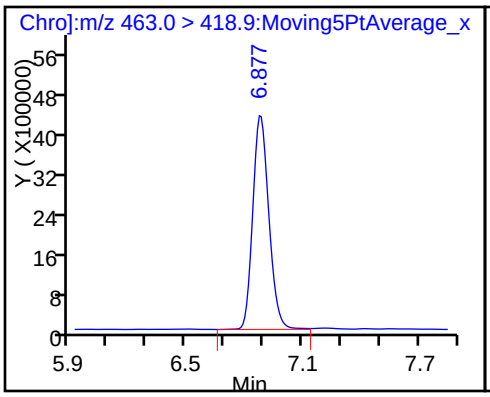
19 Perfluorooctane sulfonic acid



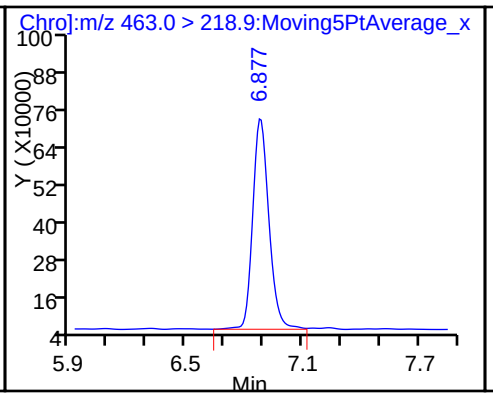
* 21 13C5 PFNA (IS)



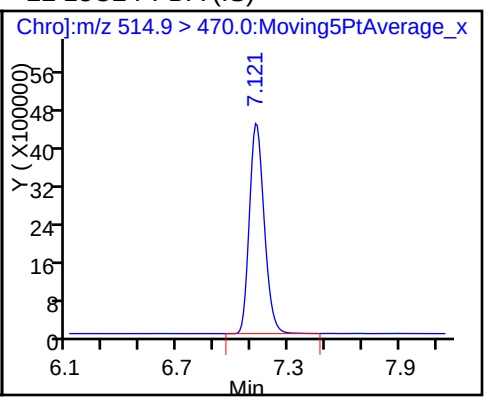
20 Perfluorononanoic acid



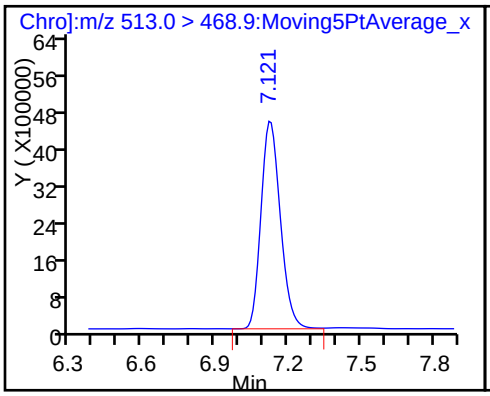
20 Perfluorononanoic acid



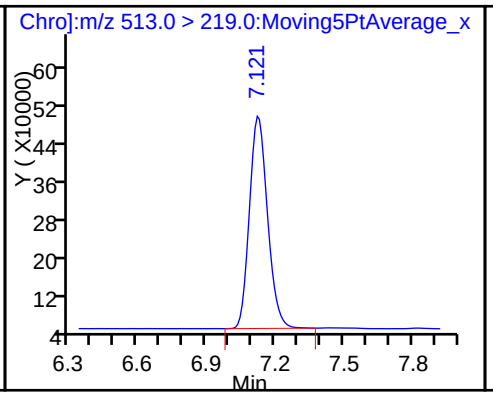
* 22 13C2 PFDA (IS)



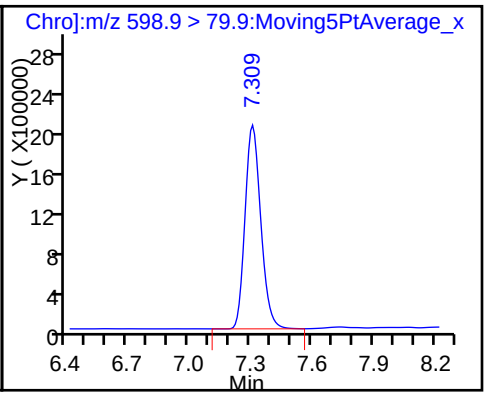
23 Perfluorodecanoic acid



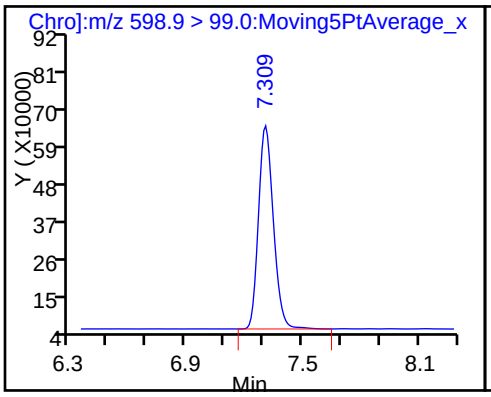
23 Perfluorodecanoic acid



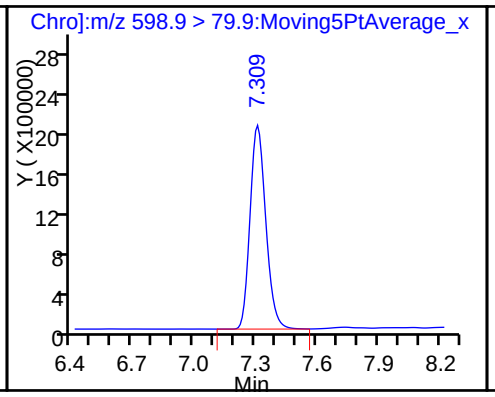
24 Perfluorodecane Sulfonic acid



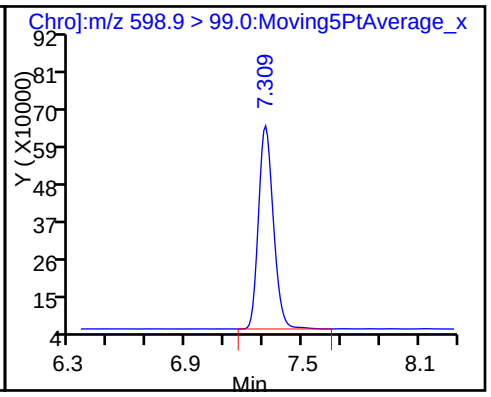
24 Perfluorodecane Sulfonic acid



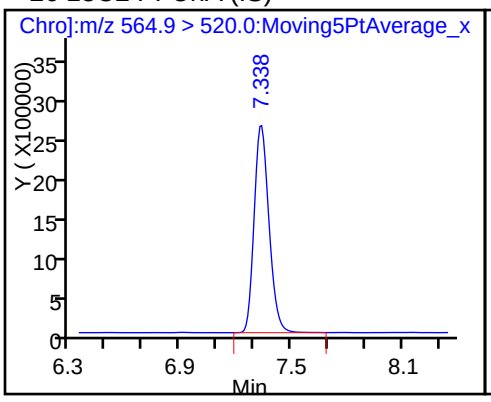
25 Perfluorodecane Sulfonate



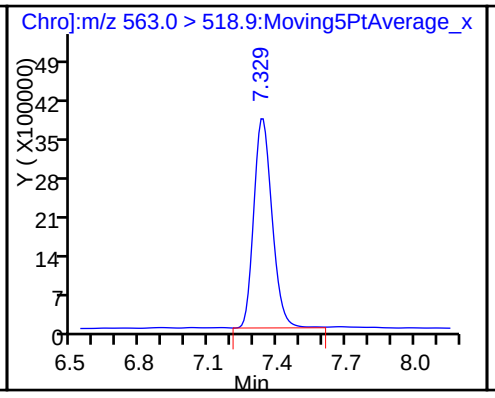
25 Perfluorodecane Sulfonate



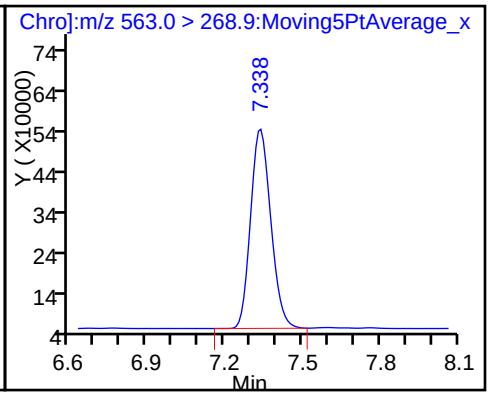
* 26 13C2 PFUnA (IS)



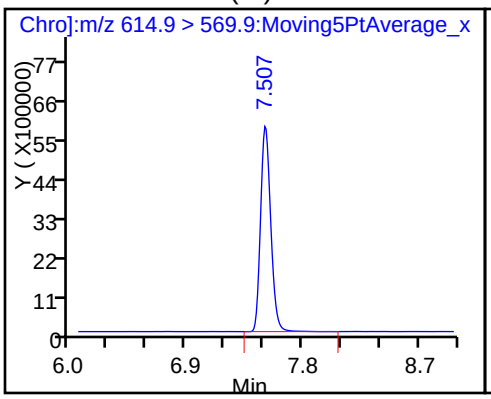
27 Perfluoroundecanoic acid



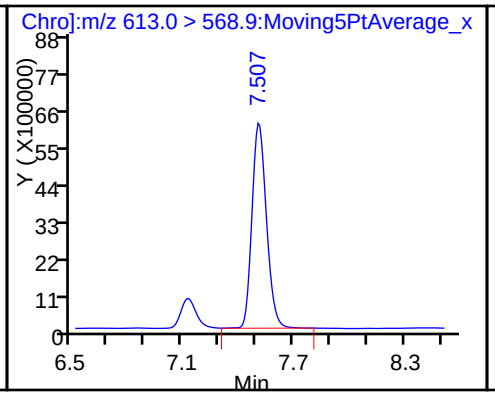
27 Perfluoroundecanoic acid



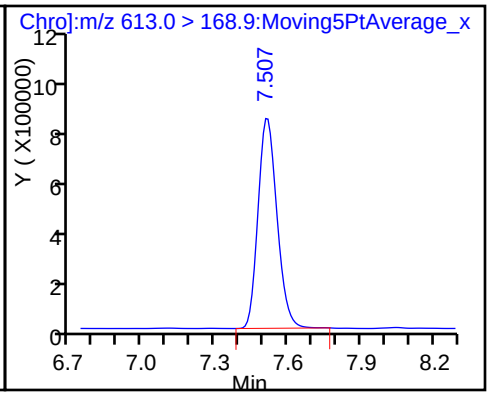
* 28 13C2 PFDoA (IS)



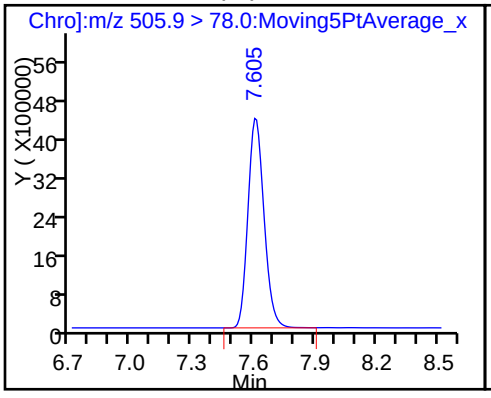
29 Perfluorododecanoic acid



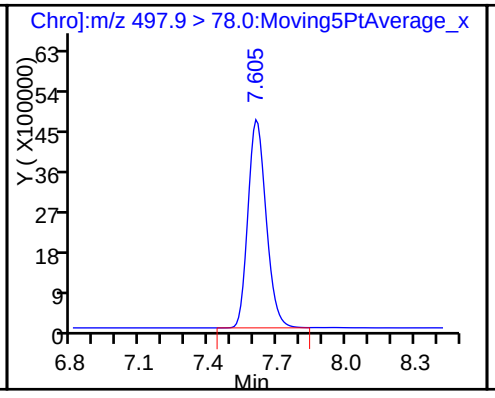
29 Perfluorododecanoic acid



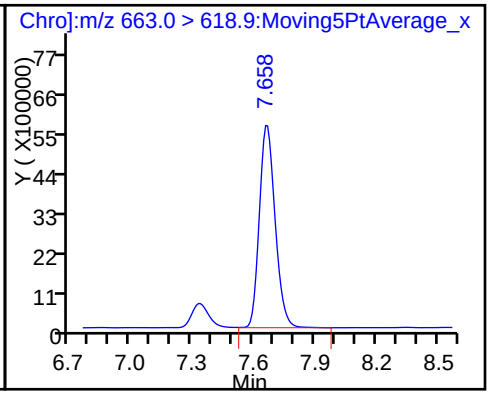
* 31 13C8 FOSA (IS)



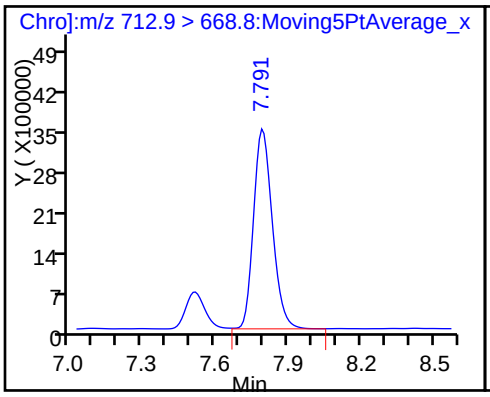
32 Perfluorooctane Sulfonamide



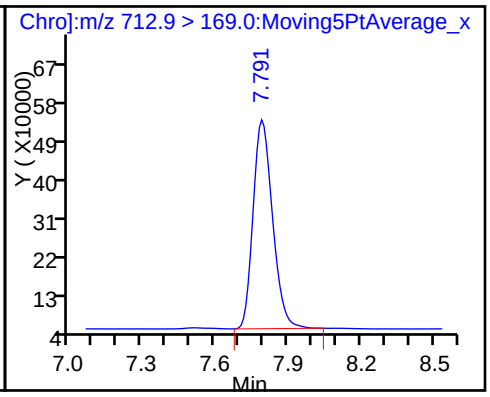
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06014.d
Lims ID: STD0200
Client ID:
Sample Type: IC Calib Level: 7
Inject. Date: 06-Jun-2016 16:03:46 ALS Bottle#: 0 Worklist Smp#: 9
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: STD 0200, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 07-Jun-2016 14:09:11 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK003

First Level Reviewer: meyera Date: 07-Jun-2016 12:57:55

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									M
216.7 > 172.0	4.162	4.162	0.0		29015390	10.0			M
2 Perfluorobutyric acid									
213.0 > 168.9	4.162	4.162	0.0	1.000	64808389	20.8			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.251	5.232	0.019	0.900	52945593	20.8			
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.374	5.364	0.010	0.858	21952626	17.8			
298.9 > 98.9	5.374	5.364	0.010	0.858	6871828		3.19(2.57-2.57)		
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.374	5.364	0.010	0.858	21952626	17.8			
298.9 > 98.9	5.374	5.364	0.010	0.858	6871828		3.19(1.80-3.35)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.837	5.818	0.019		21659671	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.838	5.819	0.019	1.000	40945931	20.0			
313.0 > 118.6	5.838	5.819	0.019	1.000	1093299		37.45(34.05-63.23)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.254	6.244	0.010	0.947	50554239	20.9			
363.0 > 168.9	6.254	6.244	0.010	0.947	13048171		3.87(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.263	6.253	0.010		2237000	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.263	6.253	0.010	1.000	17932033	19.7			R
398.9 > 98.9	6.263	6.253	0.010	1.000	6554762		2.74(1.30-2.41)		
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.263	6.253	0.010	1.000	17932033	19.7			
398.9 > 98.9	6.263	6.253	0.010	1.000	6554762		2.74(1.85-1.85)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.593	6.583	0.010	0.960	20264466	18.8			
449.0 > 98.9	6.593	6.583	0.010	0.960	6205577		3.27(0.00-0.00)		
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.593	6.583	0.010	0.960	20264466	18.8			
449.0 > 98.9	6.593	6.583	0.010	0.960	6205577		3.27(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.603	6.593	0.010	1.000	41702455	18.6			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.603	6.593	0.010		27817355	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.603	6.594	0.009	1.000	60046068	20.8			
413.0 > 169.0	6.603	6.594	0.009	1.000	17669896		3.40(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.865	6.865	0.0	1.000	9525828	17.5			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.866	6.866	0.0		8502855	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.866	6.866	0.0	1.000	19674973	18.9			R
498.9 > 98.9	6.866	6.866	0.0	1.000	7257361		2.71(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.895	6.886	0.009		19553054	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.886	6.886	0.0	0.999	43845776	20.0			
463.0 > 218.9	6.886	6.886	0.0	0.999	6517013		6.73(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.130	7.130	0.0		25049763	10.0			
23 Perfluorodecanoic acid									R
513.0 > 468.9	7.130	7.130	0.0	1.000	48421431	19.2			R
513.0 > 219.0	7.130	7.130	0.0	1.000	4857980		9.97(10.49-19.48)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.309	7.318	-0.009	1.065	21695661	19.8			
598.9 > 99.0	7.309	7.318	-0.009	1.065	6263537		3.46(2.84-2.84)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.309	7.318	-0.009	1.065	21695661	19.8			
598.9 > 99.0	7.309	7.318	-0.009	1.065	6263537		3.46(1.99-3.69)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.338	7.347	-0.009		14324439	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.338	7.347	-0.009	1.000	39180966	19.3			R
563.0 > 268.9	7.338	7.347	-0.009	1.000	5065272		7.74(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.507	7.517	-0.010		30670086	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.507	7.517	-0.010	1.000	63246783	20.1			
613.0 > 168.9	7.507	7.517	-0.010	1.000	8435480		7.50(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.605	7.614	-0.009		24516831	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.605	7.615	-0.010	1.000	51602388	19.4			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.658	7.668	-0.010	1.020	59415459	20.9			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.791	7.800	-0.009	1.038	39118116	21.6			
712.9 > 169.0	7.791	7.800	-0.009	1.038	5375239		7.28(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Review Flags

M - Manually Integrated

Reagents:

PFC-LCS_00078	Amount Added:	40.00	Units: uL
PFC-IS_00021	Amount Added:	20.00	Units: uL
PFC_Surr_00021	Amount Added:	40.00	Units: uL

Report Date: 07-Jun-2016 14:09:11 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06014.d

Injection Date: 06-Jun-2016 16:03:46 Instrument ID: LC_LCMS5

Lims ID: STD0200

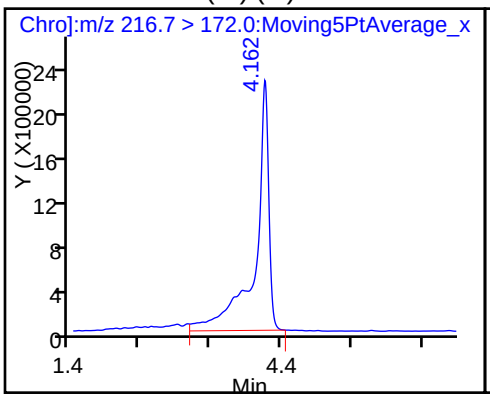
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 9

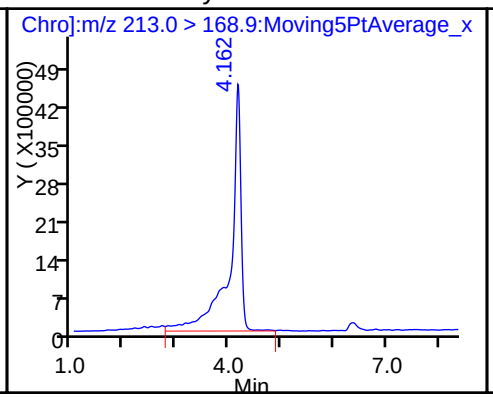
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

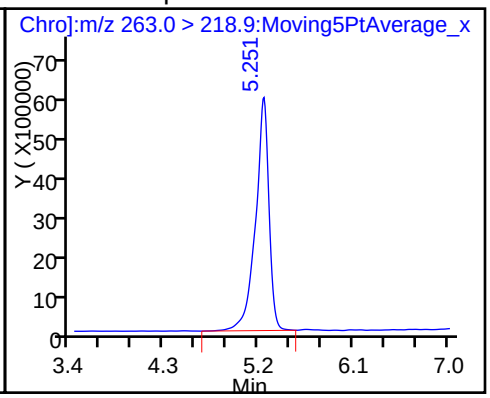
* 1 13C4 PFBA (IS) (M)



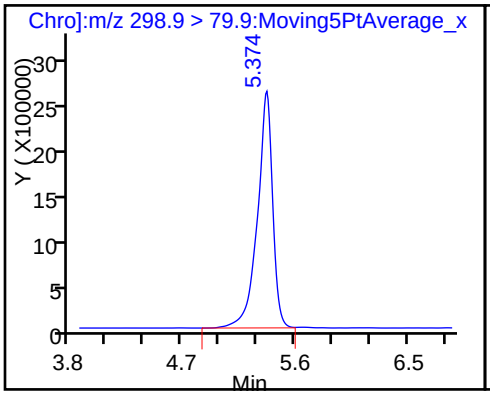
2 Perfluorobutyric acid



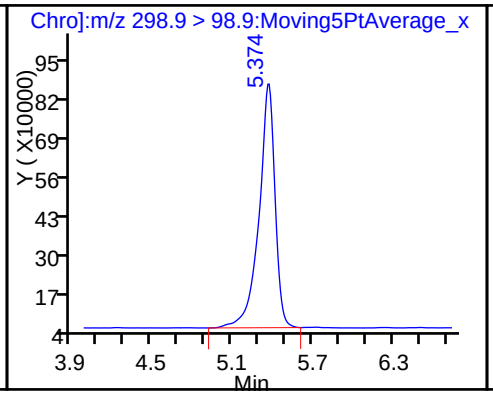
3 Perfluoropentanoic acid



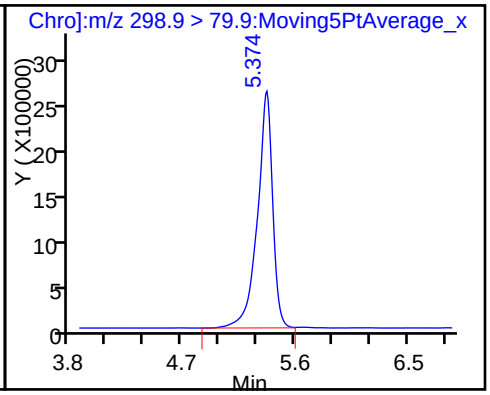
5 Perfluorobutanesulfonic acid



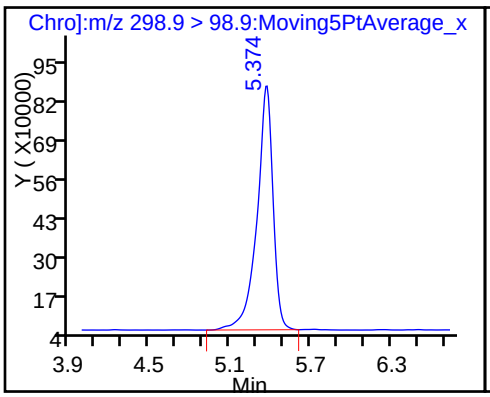
5 Perfluorobutanesulfonic acid



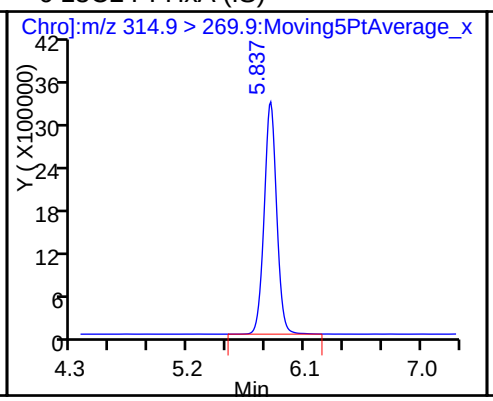
4 Perfluorobutane Sulfonate



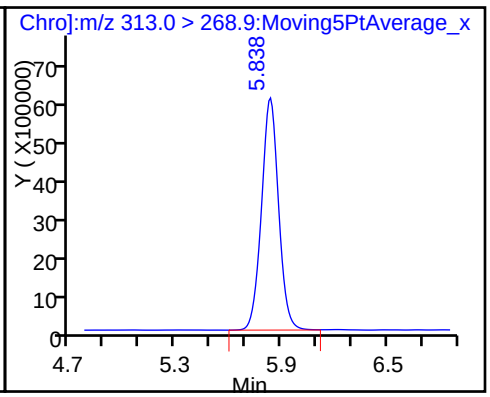
4 Perfluorobutane Sulfonate



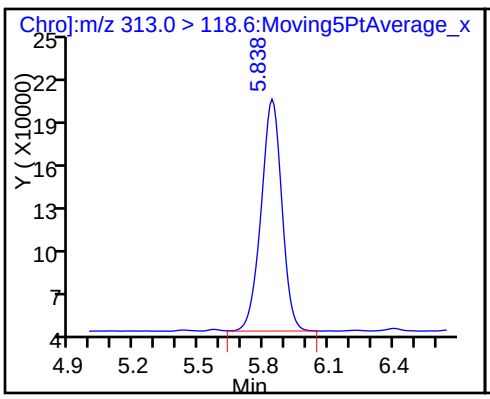
* 6 13C2 PFHxA (IS)



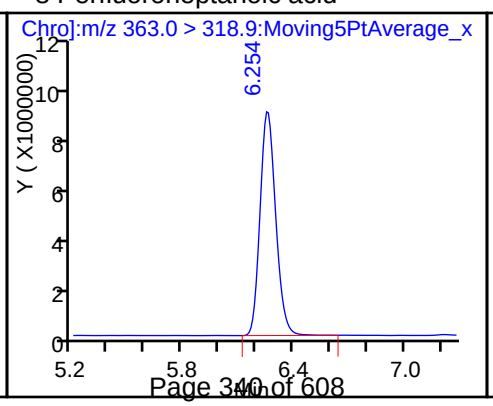
7 Perfluorohexanoic acid



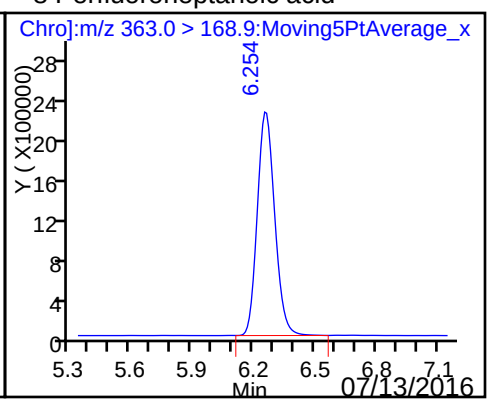
7 Perfluorohexanoic acid



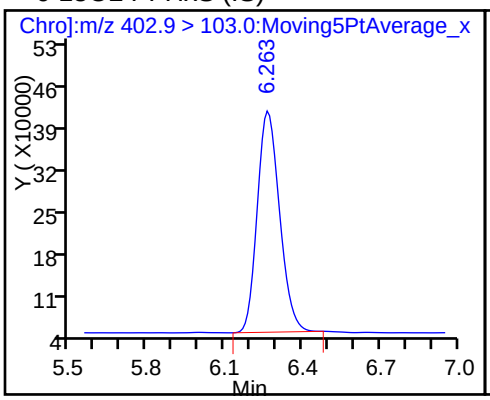
8 Perfluoroheptanoic acid



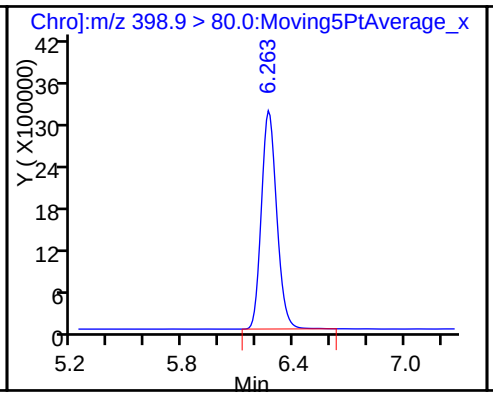
8 Perfluoroheptanoic acid



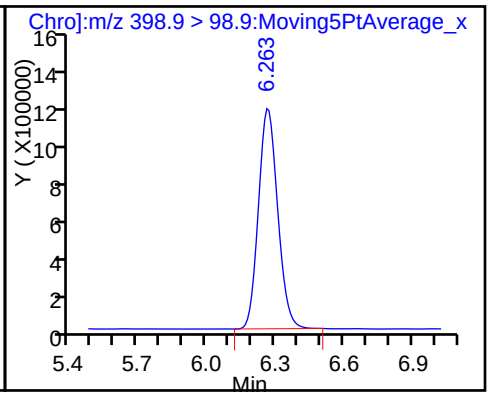
* 9 18O2 PFHxS (IS)



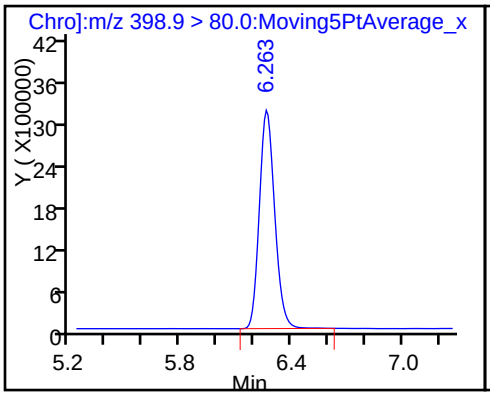
10 Perfluorohexane Sulfonate



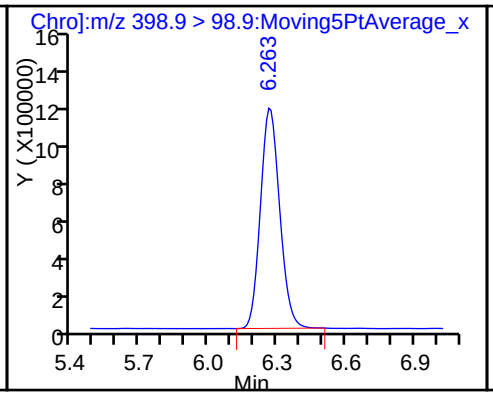
10 Perfluorohexane Sulfonate



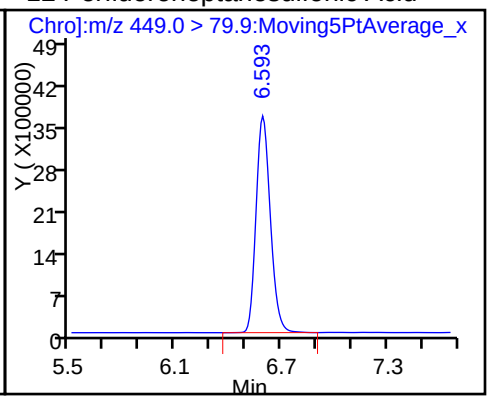
11 Perfluorohexanesulfonic acid



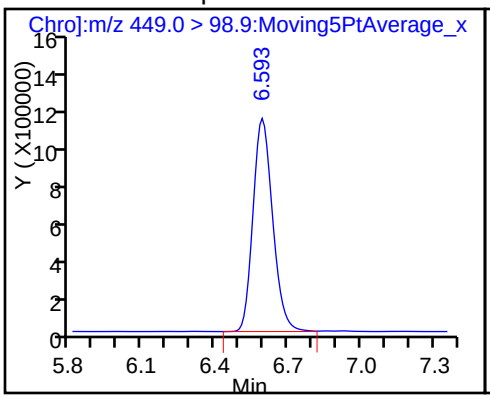
11 Perfluorohexanesulfonic acid



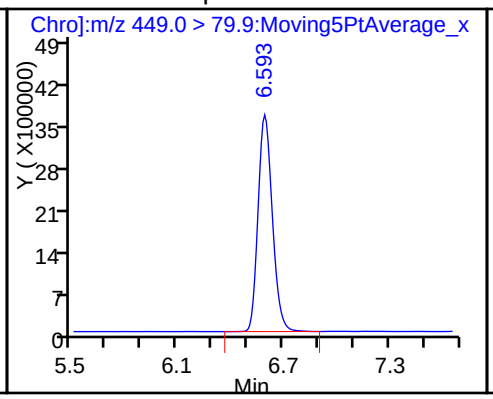
12 Perfluoroheptanesulfonic Acid



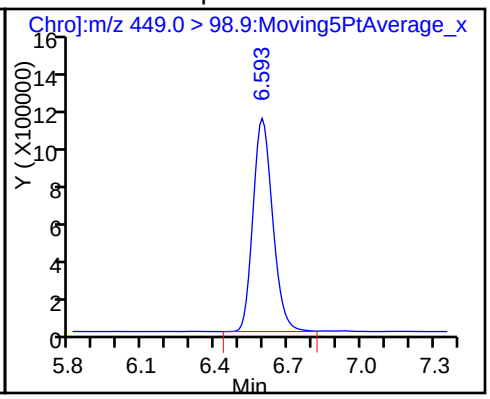
12 Perfluoroheptanesulfonic Acid



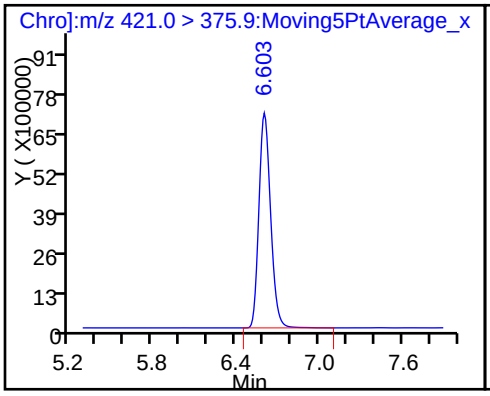
13 Perfluoroheptane Sulfonate



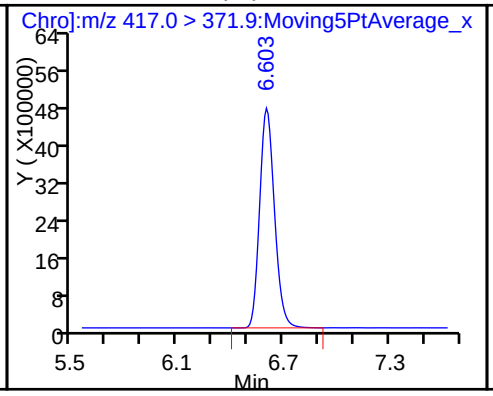
13 Perfluoroheptane Sulfonate



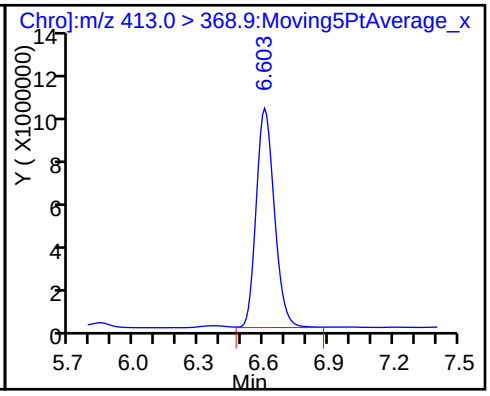
$ 14 13C8 PFOA



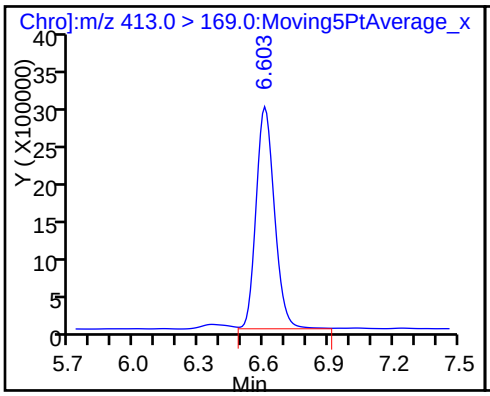
* 15 13C4 PFOA (IS)



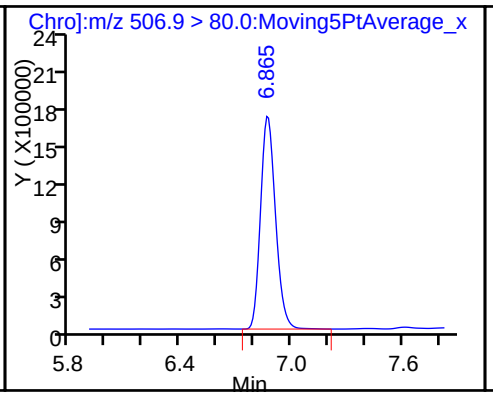
16 Perfluorooctanoic acid



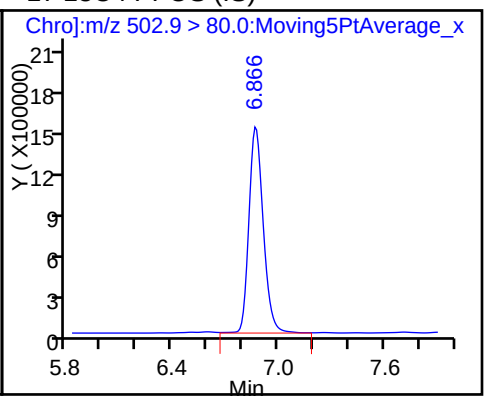
16 Perfluorooctanoic acid



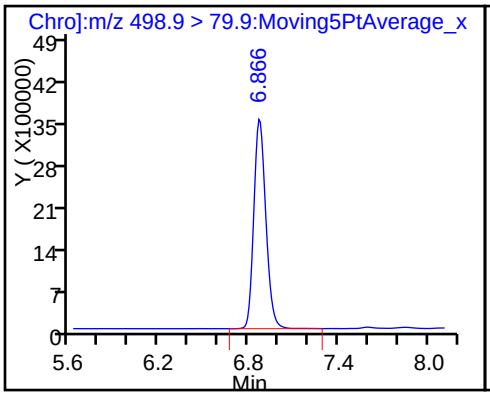
$ 18 13C8 PFOS



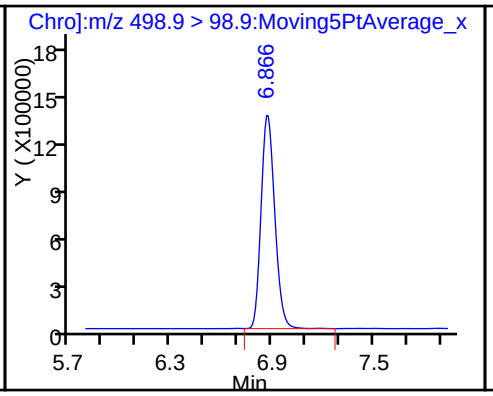
* 17 13C4 PFOS (IS)



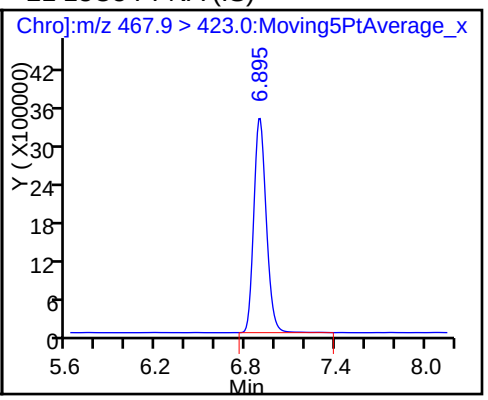
19 Perfluorooctane sulfonic acid



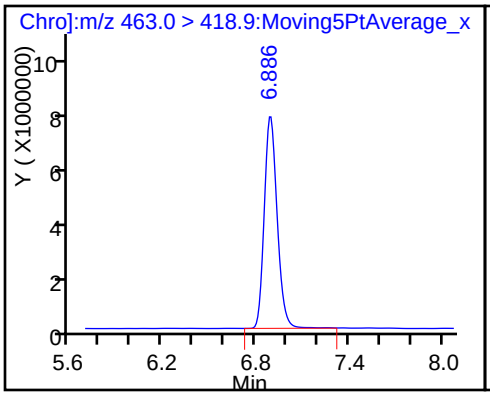
19 Perfluorooctane sulfonic acid



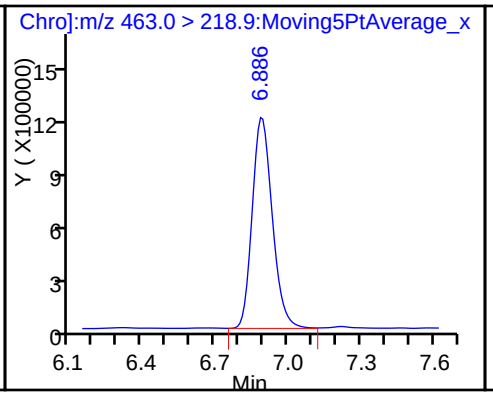
* 21 13C5 PFNA (IS)



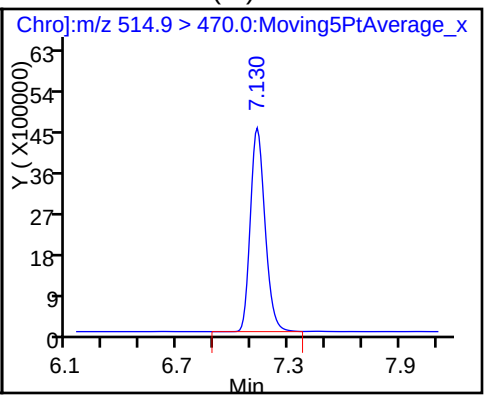
20 Perfluorononanoic acid



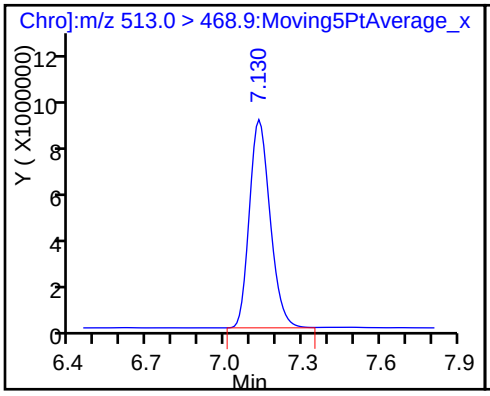
20 Perfluorononanoic acid



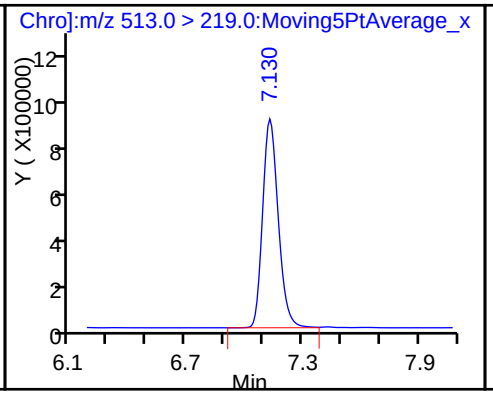
* 22 13C2 PFDA (IS)



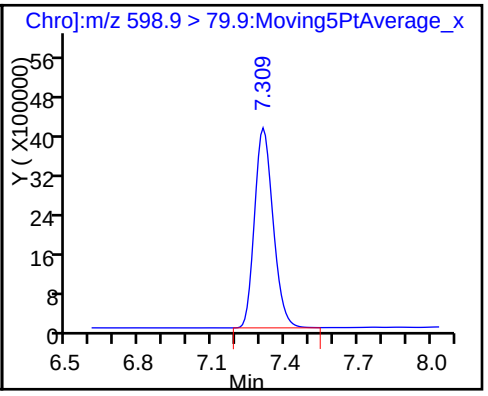
23 Perfluorodecanoic acid



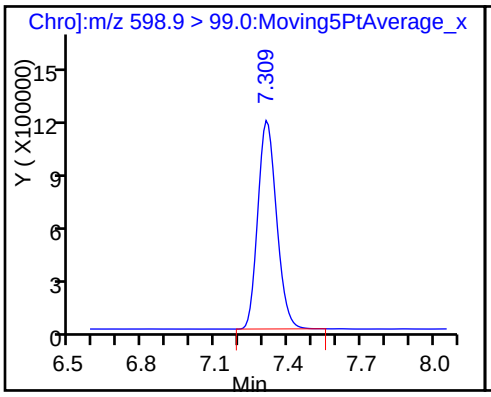
23 Perfluorodecanoic acid



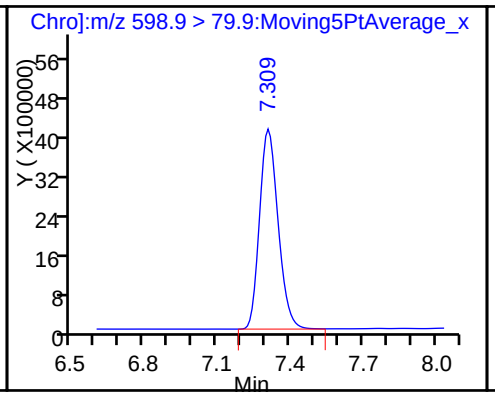
24 Perfluorodecane Sulfonic acid



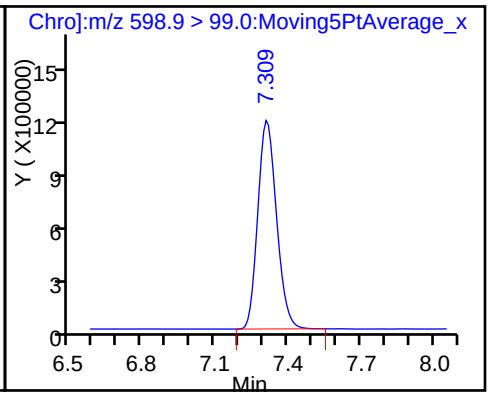
24 Perfluorodecane Sulfonic acid



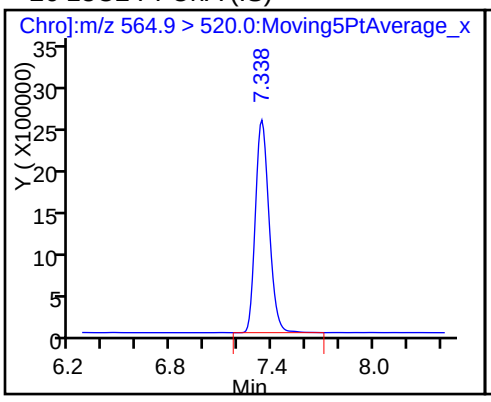
25 Perfluorodecane Sulfonate



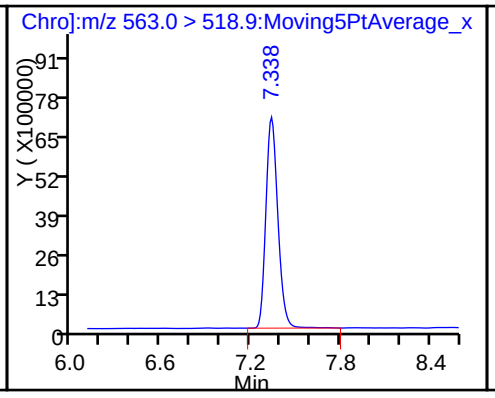
25 Perfluorodecane Sulfonate



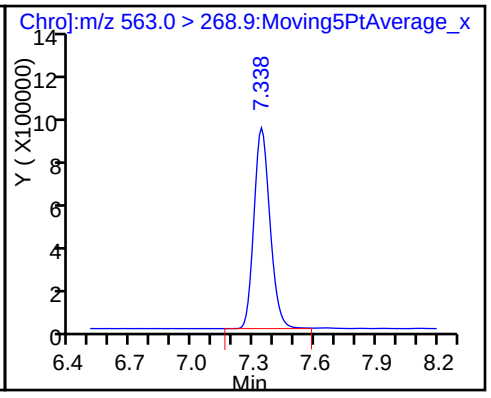
* 26 13C2 PFUnA (IS)



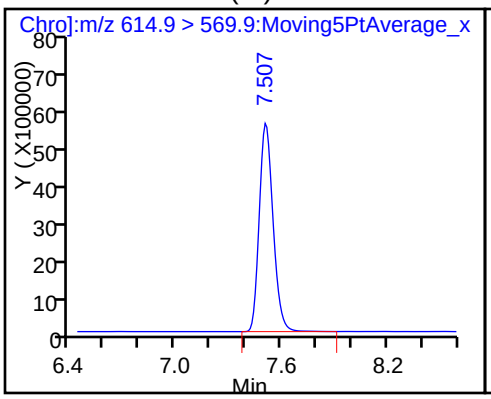
27 Perfluoroundecanoic acid



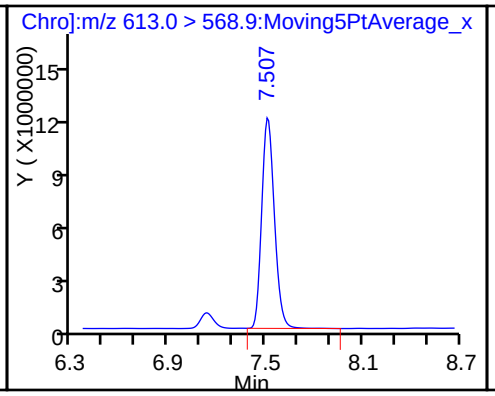
27 Perfluoroundecanoic acid



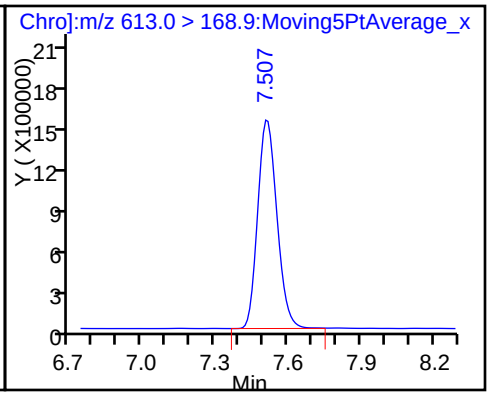
* 28 13C2 PFDoA (IS)



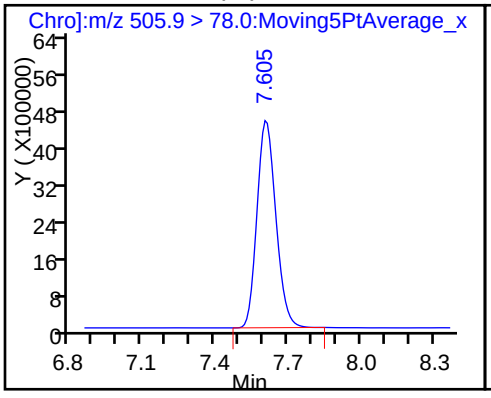
29 Perfluorododecanoic acid



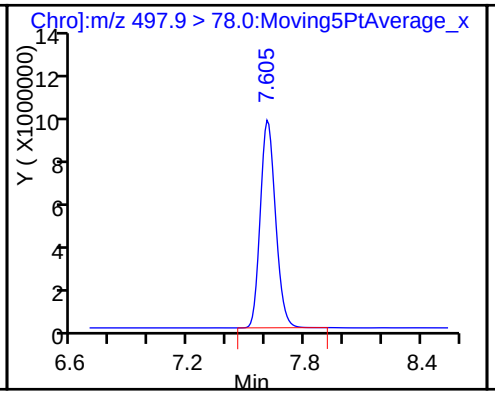
29 Perfluorododecanoic acid



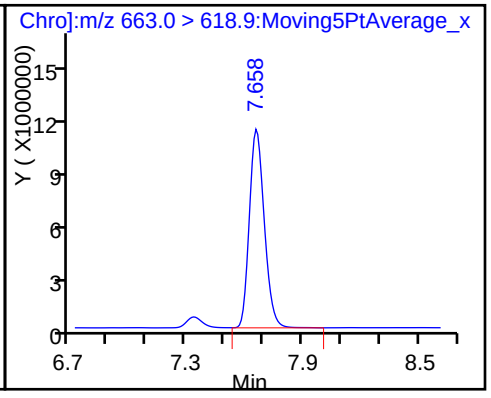
* 31 13C8 FOSA (IS)



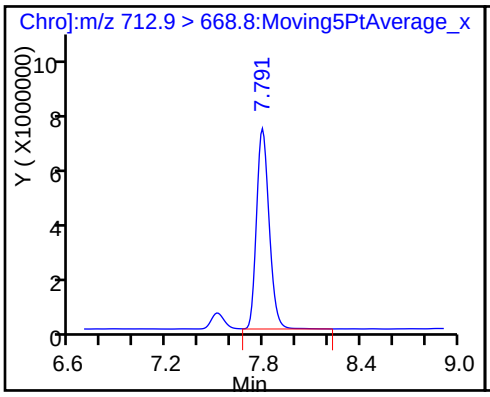
32 Perfluorooctane Sulfonamide



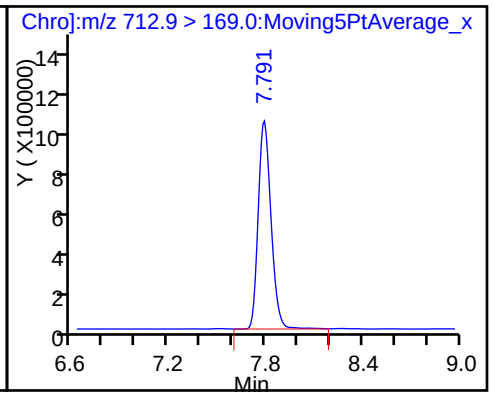
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



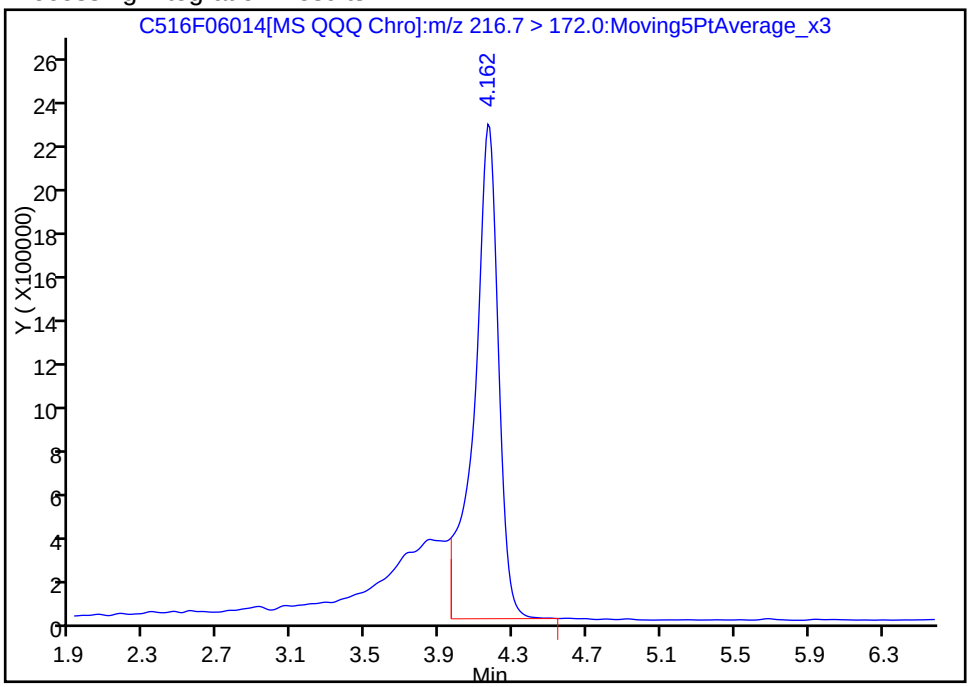
TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06014.d
Injection Date: 06-Jun-2016 16:03:46 Instrument ID: LC_LCMS5
Lims ID: STD0200
Client ID:
Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 9
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Method: 8321_PFC Limit Group: LC - PFC
Column: Detector MS QQQ

* 1 13C4 PFBA (IS), CAS: STL01003

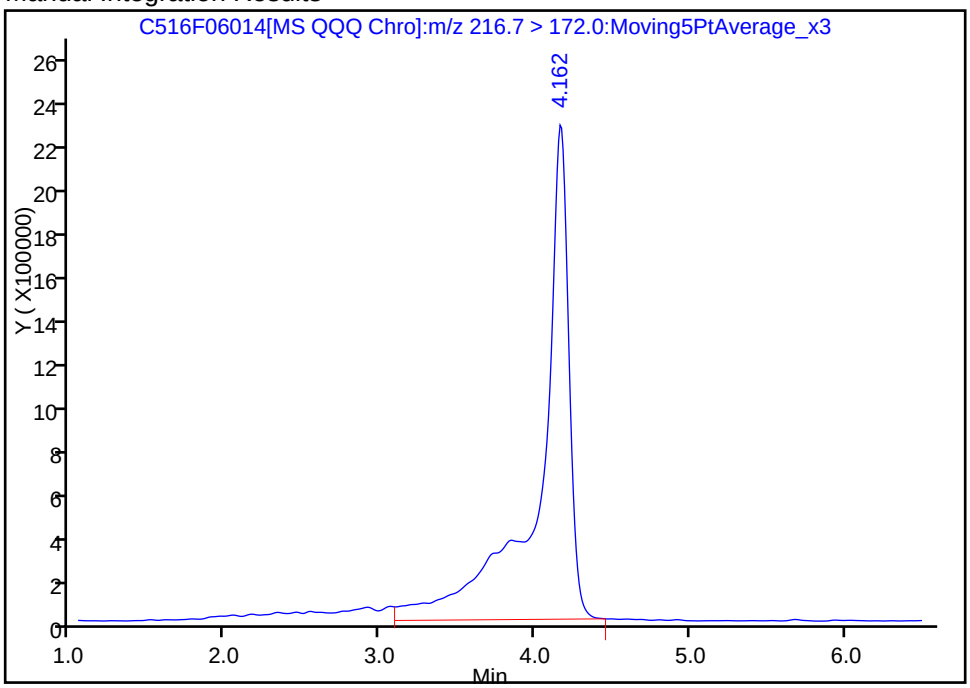
Processing Integration Results

RT: 4.16
Area: 19722665
Amount: 10.000000
Amount Units: ug/L



Manual Integration Results

RT: 4.16
Area: 29015390
Amount: 10.000000
Amount Units: ug/L



Reviewer: meyera, 07-Jun-2016 12:57:55
Audit Action: Manually Integrated
Audit Reason: Baseline

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06015.d
Lims ID: STD0500
Client ID:
Sample Type: IC Calib Level: 8
Inject. Date: 06-Jun-2016 16:16:04 ALS Bottle#: 0 Worklist Smp#: 10
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: STD 0500, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 07-Jun-2016 14:09:17 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK003

First Level Reviewer: meyera Date: 07-Jun-2016 12:58:12

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.162	4.162	0.0		28899590	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	4.162	4.162	0.0	1.000	157344591	50.7			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.232	5.232	0.0	0.898	120508960	51.5			
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.355	5.364	-0.009	0.855	52661159	46.7			
298.9 > 98.9	5.355	5.364	-0.009	0.855	15734279		3.35(2.57-2.57)		
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.355	5.364	-0.009	0.855	52661159	46.7			
298.9 > 98.9	5.355	5.364	-0.009	0.855	15734279		3.35(1.80-3.35)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.828	5.818	0.010		19918903	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.828	5.819	0.009	1.000	92031312	48.9			
313.0 > 118.6	5.819	5.819	0.0	0.998	2416833		38.08(34.05-63.23)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.254	6.244	0.010	0.948	102889489	48.9			
363.0 > 168.9	6.254	6.244	0.010	0.948	26954929		3.82(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.263	6.253	0.010		2040676	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.263	6.253	0.010	1.000	37926174	45.7			R
398.9 > 98.9	6.263	6.253	0.010	1.000	13830962		2.74(1.30-2.41)		
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.263	6.253	0.010	1.000	37926174	45.7			
398.9 > 98.9	6.263	6.253	0.010	1.000	13830962		2.74(1.85-1.85)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.583	6.583	0.0	0.959	43315154	47.2			
449.0 > 98.9	6.583	6.583	0.0	0.959	13564341		3.19(0.00-0.00)		
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.583	6.583	0.0	0.959	43315154	47.2			
449.0 > 98.9	6.583	6.583	0.0	0.959	13564341		3.19(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.593	6.593	0.0	1.000	85046612	43.5			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.593	6.593	0.0		24245688	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.594	6.594	0.0	1.000	118077119	47.0			
413.0 > 169.0	6.594	6.594	0.0	1.000	34953467		3.38(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.865	6.865	0.0	1.000	19830288	43.0			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.866	6.866	0.0		7235826	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.866	6.866	0.0	1.000	40197453	45.6			R
498.9 > 98.9	6.866	6.866	0.0	1.000	14750225		2.73(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.886	6.886	0.0		16026593	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.886	6.886	0.0	1.000	90947910	50.8			
463.0 > 218.9	6.886	6.886	0.0	1.000	13125494		6.93(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.121	7.130	-0.009		21729944	10.0			
23 Perfluorodecanoic acid									
513.0 > 468.9	7.121	7.130	-0.009	1.000	109010928	49.9			
513.0 > 219.0	7.121	7.130	-0.009	1.000	10212681		10.67(10.49-19.48)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.309	7.318	-0.009	1.065	47343835	50.7			
598.9 > 99.0	7.309	7.318	-0.009	1.065	13810385		3.43(2.84-2.84)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.309	7.318	-0.009	1.065	47343835	50.7			
598.9 > 99.0	7.309	7.318	-0.009	1.065	13810385		3.43(1.99-3.69)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.338	7.347	-0.009		11601224	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.338	7.347	-0.009	1.000	77899378	47.6			R
563.0 > 268.9	7.338	7.347	-0.009	1.000	9857109		7.90(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.507	7.517	-0.010		28794485	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.507	7.517	-0.010	1.000	142077526	48.2			
613.0 > 168.9	7.507	7.517	-0.010	1.000	18271384		7.78(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.605	7.614	-0.009		21576040	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.605	7.615	-0.010	1.000	117575149	50.2			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.658	7.668	-0.010	1.020	121132497	45.5			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.791	7.800	-0.009	1.038	88331768	51.9			
712.9 > 169.0	7.791	7.800	-0.009	1.038	13420452		6.58(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Reagents:

PFC-LCS_00078	Amount Added: 100.00	Units: uL
PFC-IS_00021	Amount Added: 20.00	Units: uL
PFC_Surr_00021	Amount Added: 100.00	Units: uL

Report Date: 07-Jun-2016 14:09:18 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06015.d

Injection Date: 06-Jun-2016 16:16:04 Instrument ID: LC_LCMS5

Lims ID: STD0500

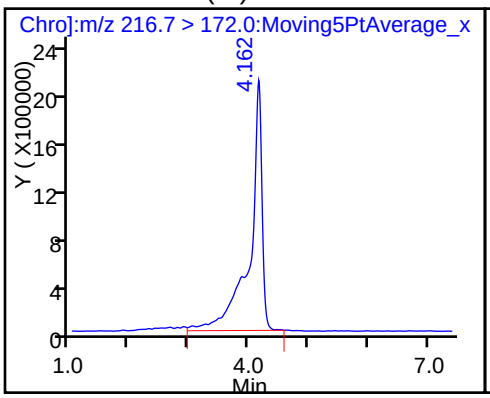
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 10

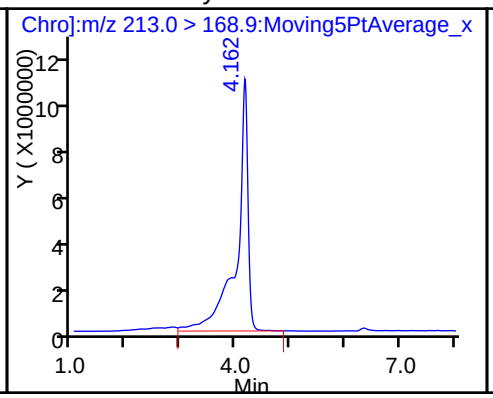
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

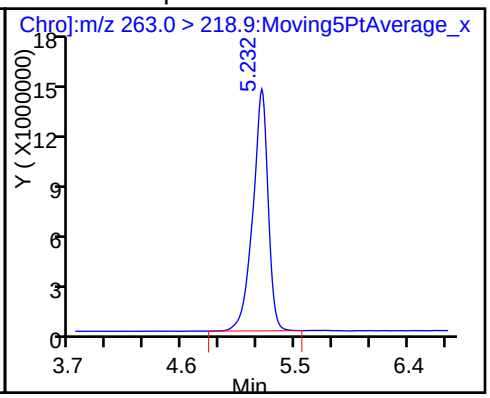
* 1 13C4 PFBA (IS)



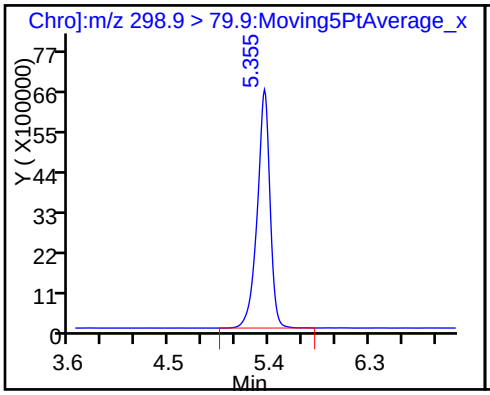
2 Perfluorobutyric acid



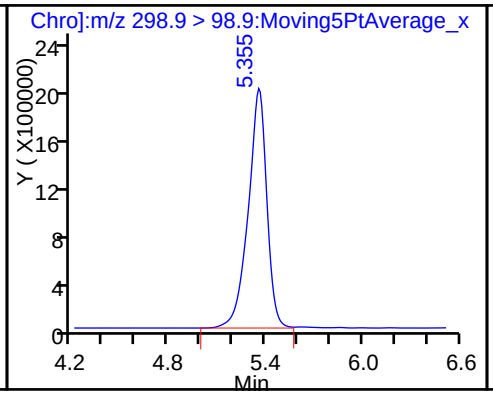
3 Perfluoropentanoic acid



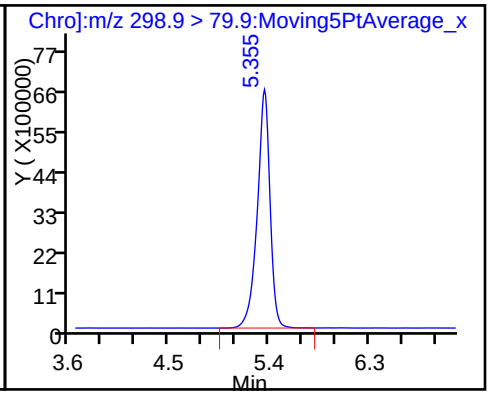
5 Perfluorobutanesulfonic acid



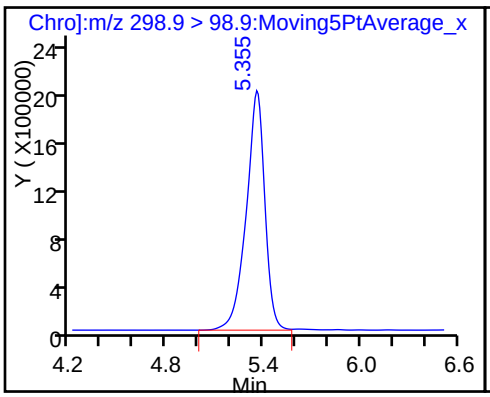
5 Perfluorobutanesulfonic acid



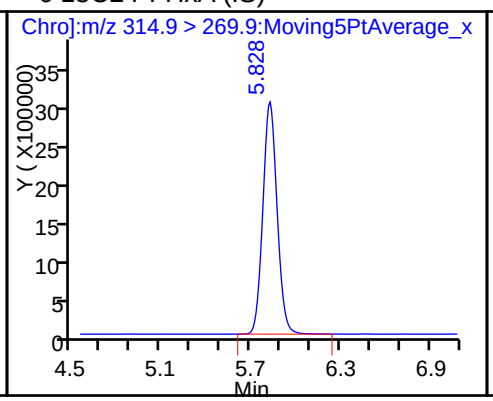
4 Perfluorobutane Sulfonate



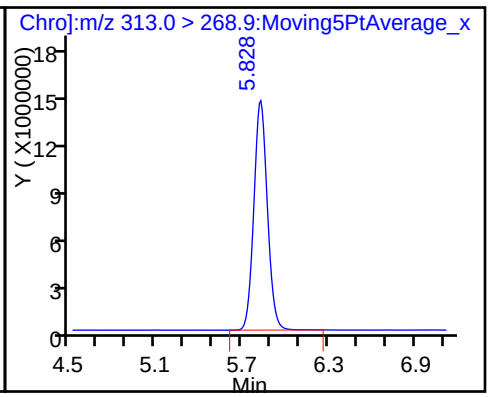
4 Perfluorobutane Sulfonate



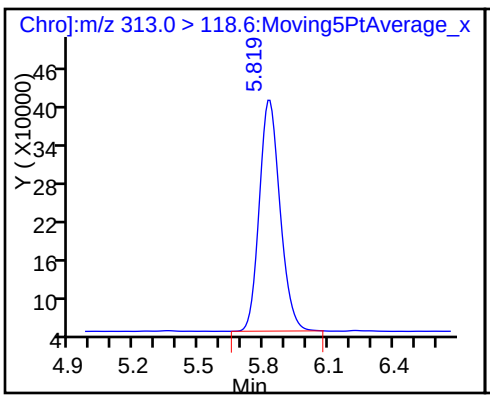
* 6 13C2 PFHxA (IS)



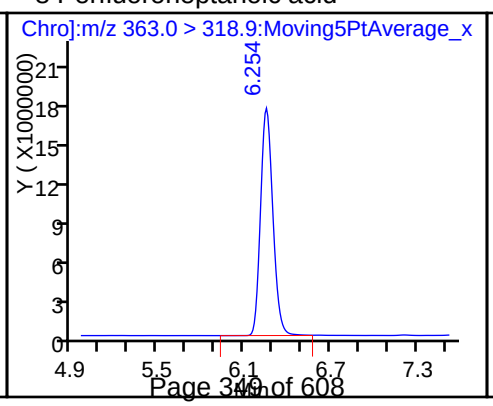
7 Perfluorohexanoic acid



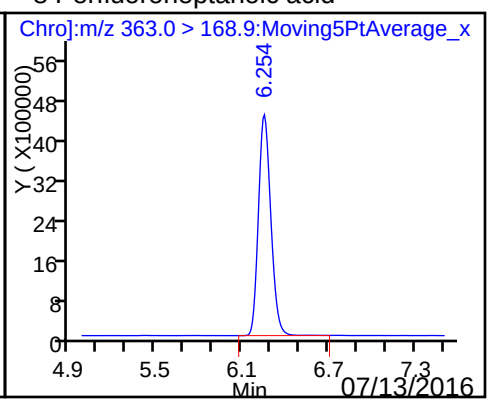
7 Perfluorohexanoic acid



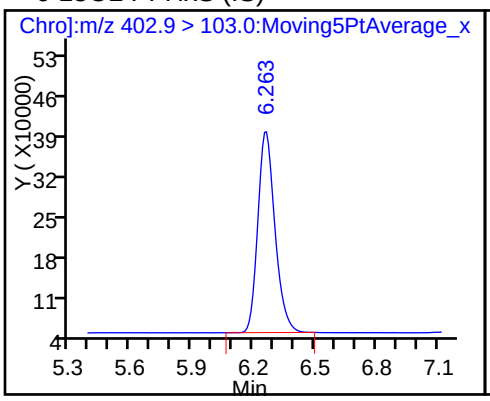
8 Perfluoroheptanoic acid



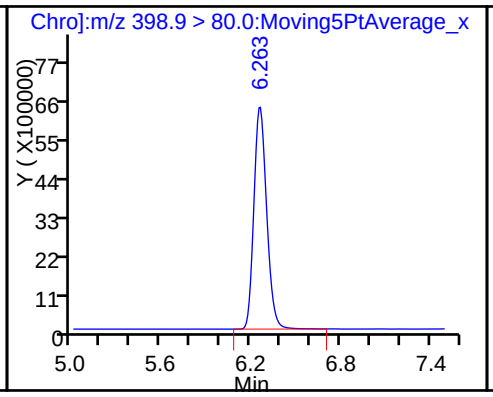
8 Perfluoroheptanoic acid



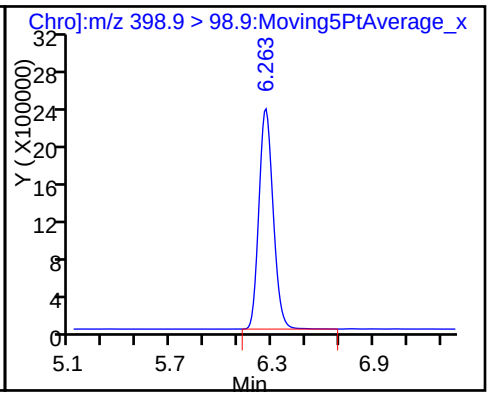
* 9 18O2 PFHxS (IS)



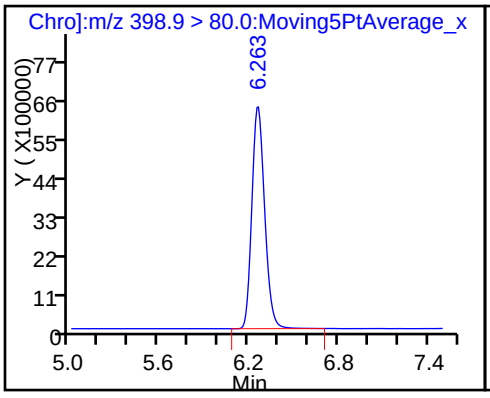
10 Perfluorohexane Sulfonate



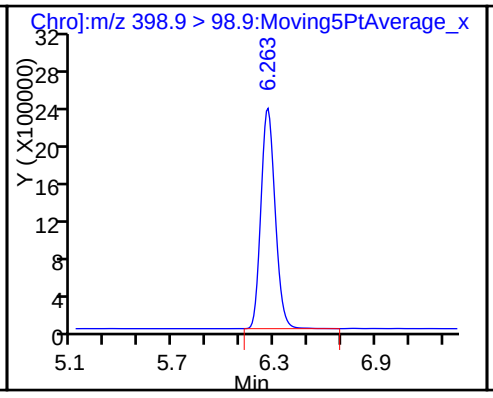
10 Perfluorohexane Sulfonate



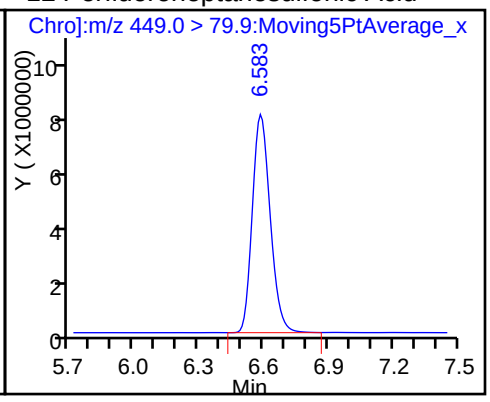
11 Perfluorohexanesulfonic acid



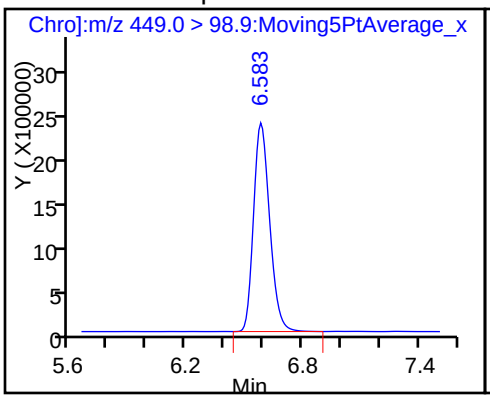
11 Perfluorohexanesulfonic acid



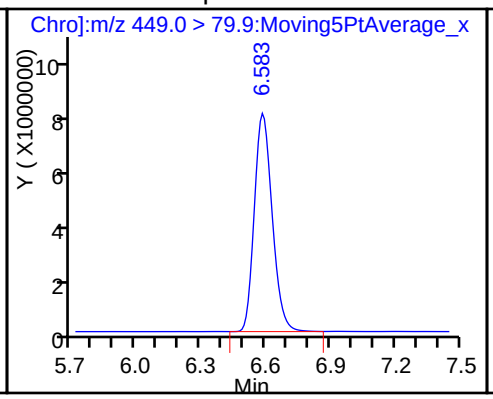
12 Perfluoroheptanesulfonic Acid



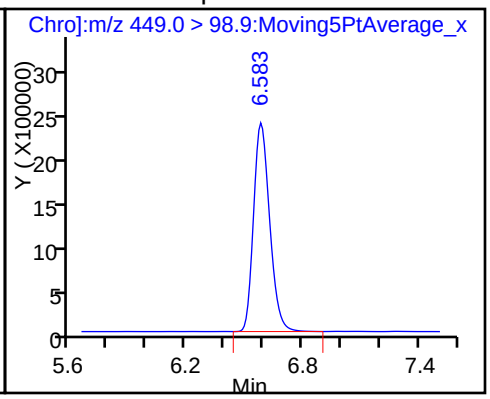
12 Perfluoroheptanesulfonic Acid



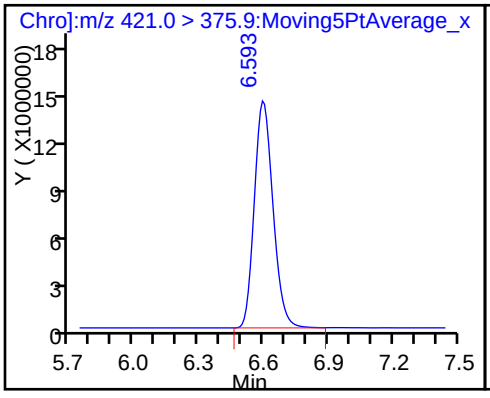
13 Perfluoroheptane Sulfonate



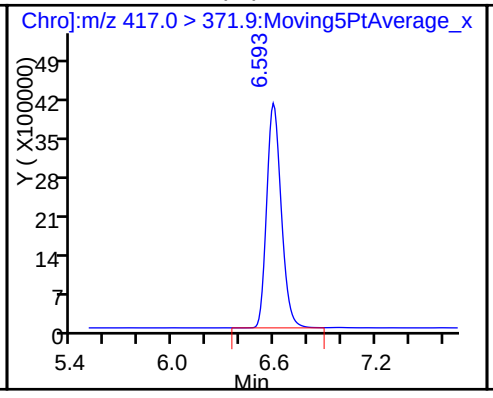
13 Perfluoroheptane Sulfonate



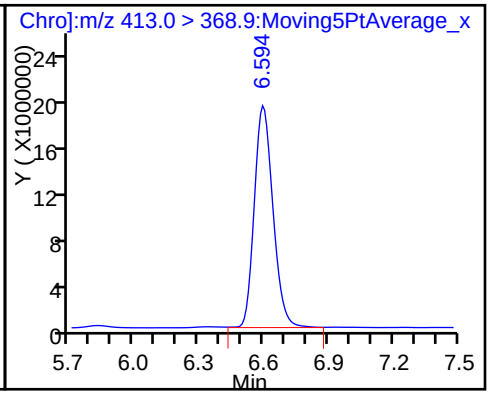
$ 14 13C8 PFOA



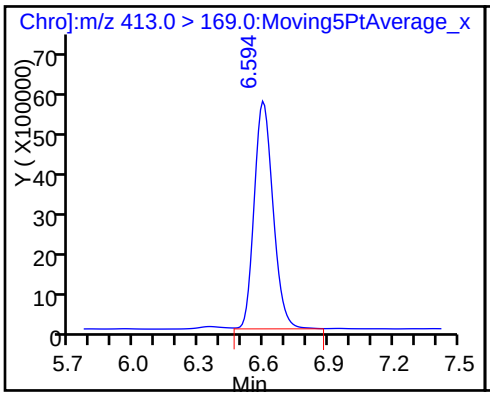
* 15 13C4 PFOA (IS)



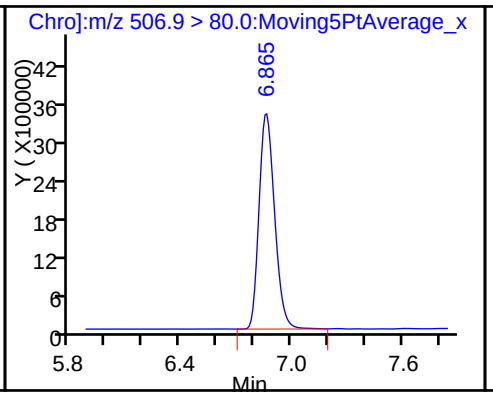
16 Perfluorooctanoic acid



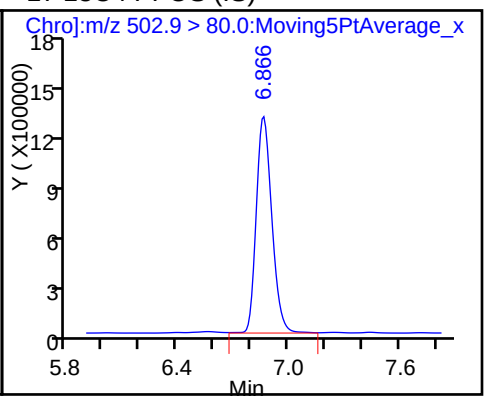
16 Perfluorooctanoic acid



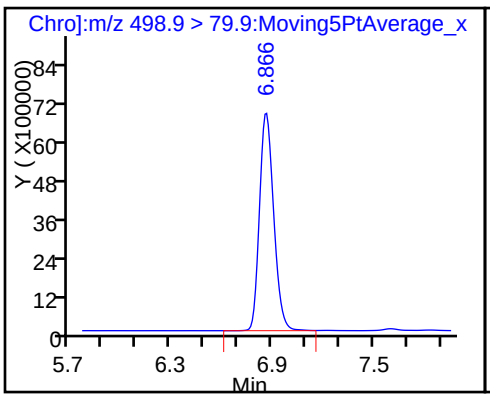
$ 18 13C8 PFOS



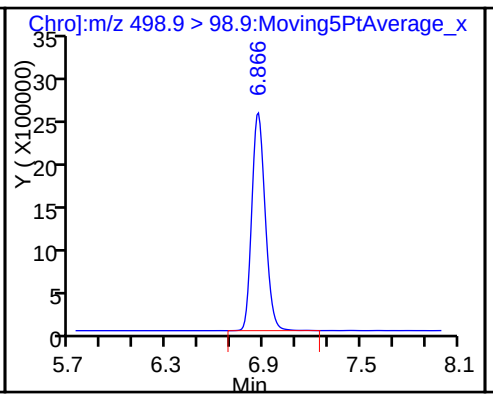
* 17 13C4 PFOS (IS)



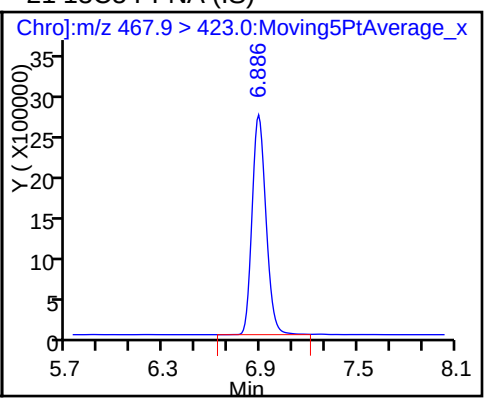
19 Perfluorooctane sulfonic acid



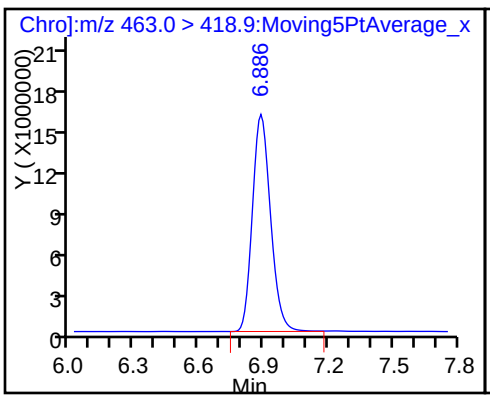
19 Perfluorooctane sulfonic acid



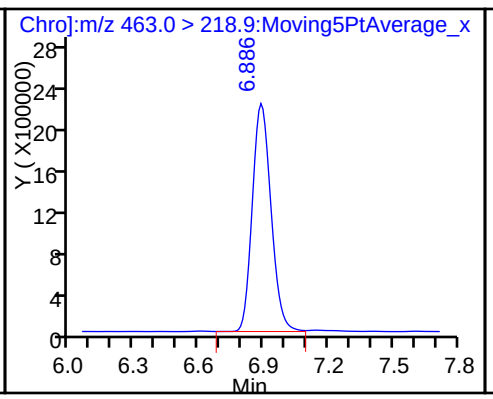
* 21 13C5 PFNA (IS)



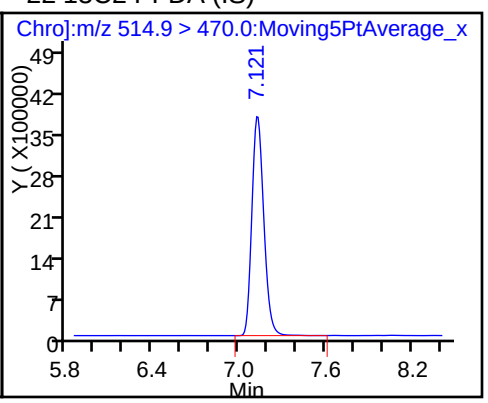
20 Perfluorononanoic acid



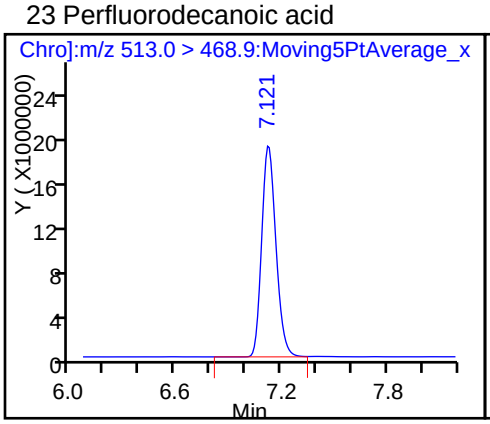
20 Perfluorononanoic acid



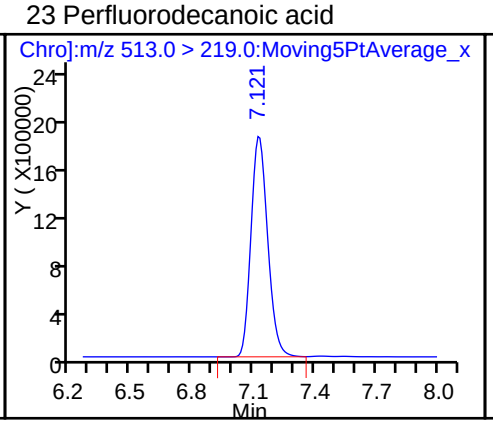
* 22 13C2 PFDA (IS)



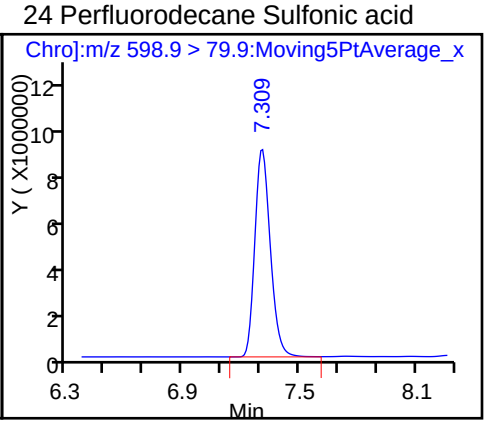
23 Perfluorodecanoic acid



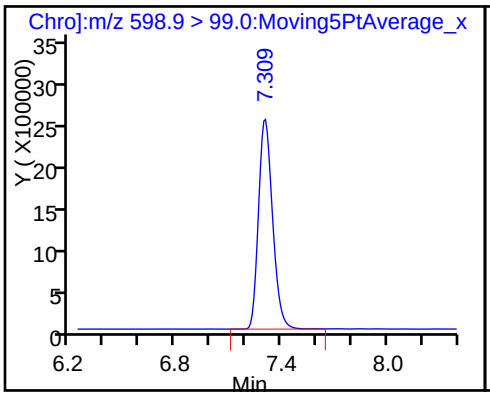
23 Perfluorodecanoic acid



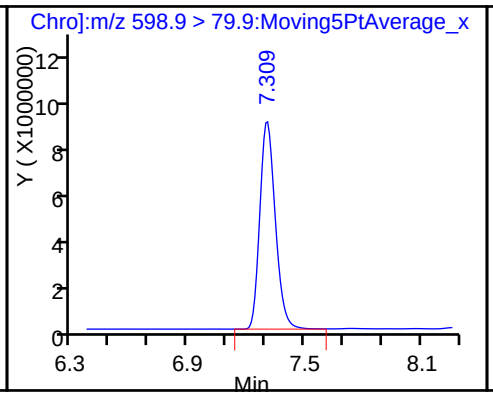
24 Perfluorodecane Sulfonic acid



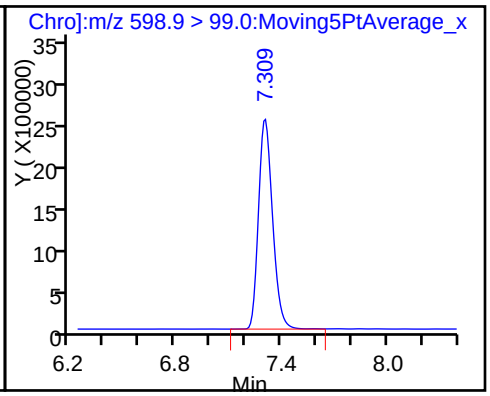
24 Perfluorodecane Sulfonic acid



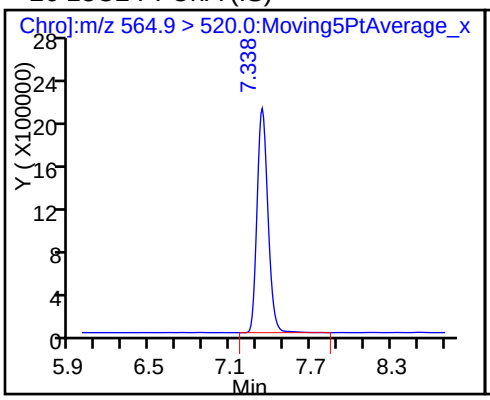
25 Perfluorodecane Sulfonate



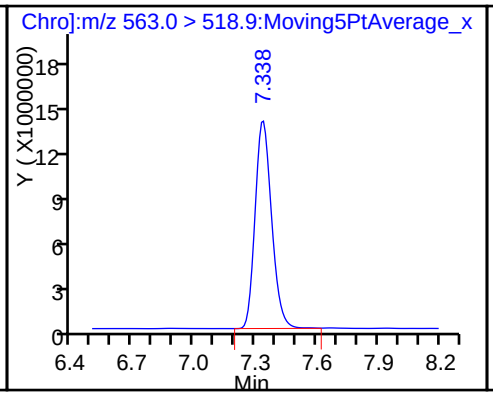
25 Perfluorodecane Sulfonate



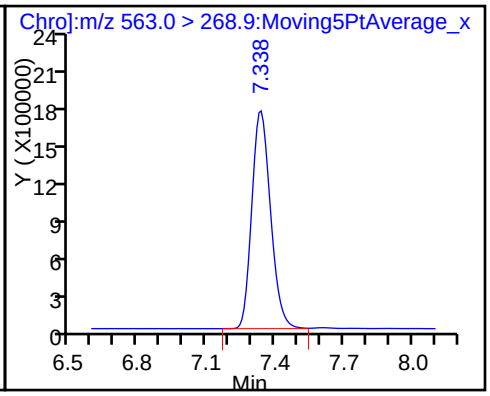
* 26 13C2 PFUnA (IS)



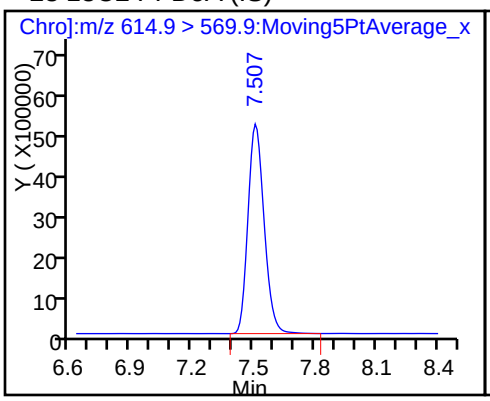
27 Perfluoroundecanoic acid



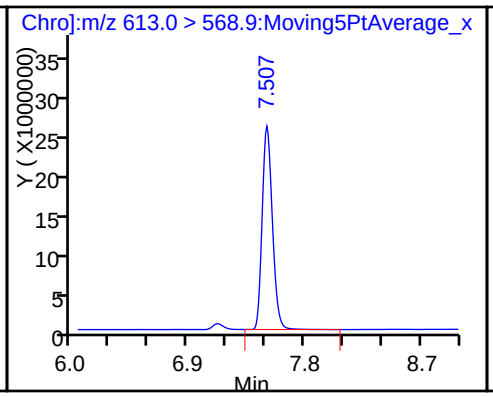
27 Perfluoroundecanoic acid



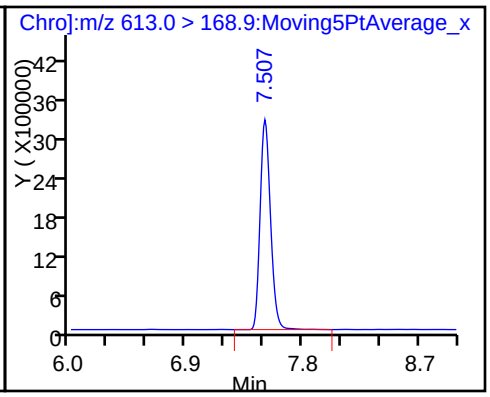
* 28 13C2 PFDoA (IS)



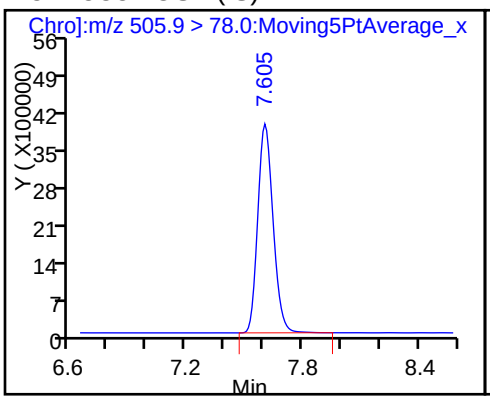
29 Perfluorododecanoic acid



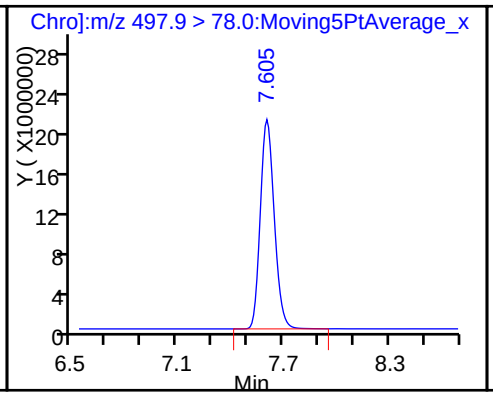
29 Perfluorododecanoic acid



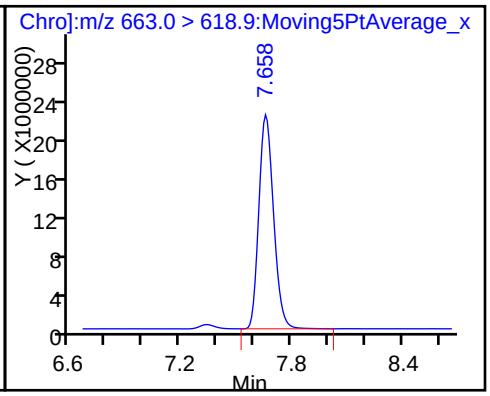
* 31 13C8 FOSA (IS)



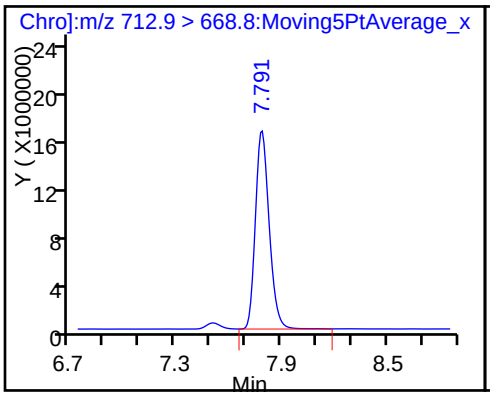
32 Perfluorooctane Sulfonamide



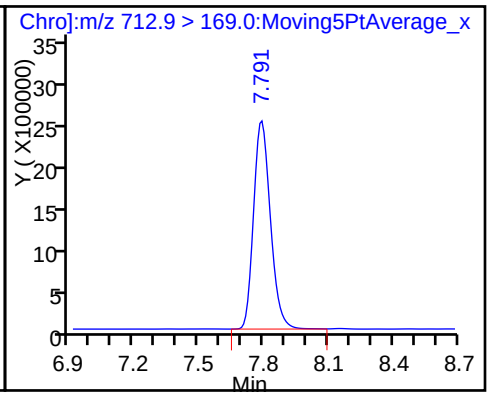
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d
Lims ID: STD1250
Client ID:
Sample Type: IC Calib Level: 9
Inject. Date: 06-Jun-2016 16:28:22 ALS Bottle#: 0 Worklist Smp#: 11
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: STD 1250, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 07-Jun-2016 14:09:24 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK003

First Level Reviewer: meyera Date: 07-Jun-2016 12:58:30

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.162	4.162	0.0		28007845	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	4.162	4.162	0.0	1.000	394160471	131.2			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.232	5.232	0.0	0.899	255912628	126.3			
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.355	5.364	-0.009	0.856	113831493	126.6			
298.9 > 98.9	5.355	5.364	-0.009	0.856	33531607		3.39(2.57-2.57)		
4 Perfluorobutane Sulfonate									R
298.9 > 79.9	5.355	5.364	-0.009	0.856	113831493	126.6			R
298.9 > 98.9	5.355	5.364	-0.009	0.856	33531607		3.39(1.80-3.35)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.818	5.818	0.0		17267639	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.819	5.819	0.0	1.000	196806552	120.8			
313.0 > 118.6	5.819	5.819	0.0	1.000	5432175		36.23(34.05-63.23)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.244	6.244	0.0	0.947	201805611	119.2			
363.0 > 168.9	6.244	6.244	0.0	0.947	53021334		3.81(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.253	6.253	0.0		1627148	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.253	6.253	0.0	1.000	77830813	117.9			R
398.9 > 98.9	6.253	6.253	0.0	1.000	26968813		2.89(1.30-2.41)		
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.253	6.253	0.0	1.000	77830813	117.9			
398.9 > 98.9	6.253	6.253	0.0	1.000	26968813		2.89(1.85-1.85)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.574	6.583	-0.009	0.959	81786282	103.6			
449.0 > 98.9	6.574	6.583	-0.009	0.959	25958942		3.15(0.00-0.00)		
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.574	6.583	-0.009	0.959	81786282	103.6			
449.0 > 98.9	6.574	6.583	-0.009	0.959	25958942		3.15(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.584	6.593	-0.009	0.999	162199054	103.2			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.593	6.593	0.0		19521527	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.584	6.594	-0.010	0.999	220819164	109.3			
413.0 > 169.0	6.594	6.594	0.0	1.000	64227565		3.44(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.856	6.865	-0.009	1.000	36728856	92.6			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.856	6.866	-0.010		6220431	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.857	6.866	-0.009	1.000	74481235	98.3			R
498.9 > 98.9	6.857	6.866	-0.009	1.000	26876105		2.77(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.876	6.886	-0.010		11951584	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.877	6.886	-0.010	1.000	168854641	126.5			
463.0 > 218.9	6.877	6.886	-0.010	1.000	25008074		6.75(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.121	7.130	-0.009		17676292	10.0			
23 Perfluorodecanoic acid									R
513.0 > 468.9	7.121	7.130	-0.009	1.000	219177035	123.5			R
513.0 > 219.0	7.121	7.130	-0.009	1.000	21075182		10.40(10.49-19.48)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.299	7.318	-0.019	1.065	90907790	113.4			
598.9 > 99.0	7.299	7.318	-0.019	1.065	27106961		3.35(2.84-2.84)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.299	7.318	-0.019	1.065	90907790	113.4			
598.9 > 99.0	7.299	7.318	-0.019	1.065	27106961		3.35(1.99-3.69)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.328	7.347	-0.019		8840302	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.329	7.347	-0.019	1.000	154032440	123.5			R
563.0 > 268.9	7.329	7.347	-0.019	1.000	19397481		7.94(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.498	7.517	-0.019		23005975	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.498	7.517	-0.019	1.000	293807930	125.0			
613.0 > 168.9	7.498	7.517	-0.019	1.000	37965617		7.74(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.595	7.614	-0.019		18054962	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.596	7.615	-0.019	1.000	250150013	127.7			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.649	7.668	-0.019	1.020	254423900	119.8			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.781	7.800	-0.019	1.038	191754560	141.1			
712.9 > 169.0	7.781	7.800	-0.019	1.038	27998880		6.85(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Reagents:

PFC-LCS_00078	Amount Added: 250.00	Units: uL
PFC-IS_00021	Amount Added: 20.00	Units: uL
PFC_Surr_00021	Amount Added: 250.00	Units: uL

Report Date: 07-Jun-2016 14:09:24 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Injection Date: 06-Jun-2016 16:28:22 Instrument ID: LC_LCMS5

Lims ID: STD1250

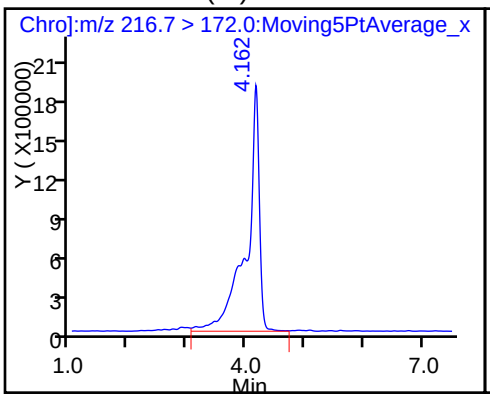
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 11

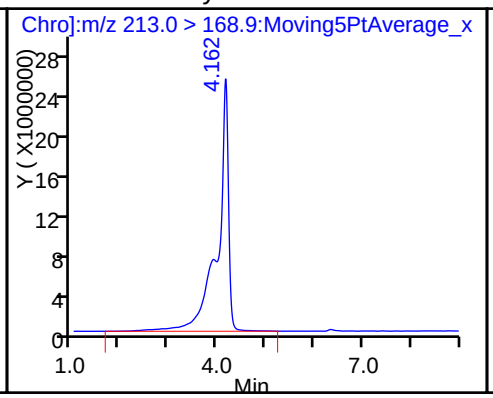
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

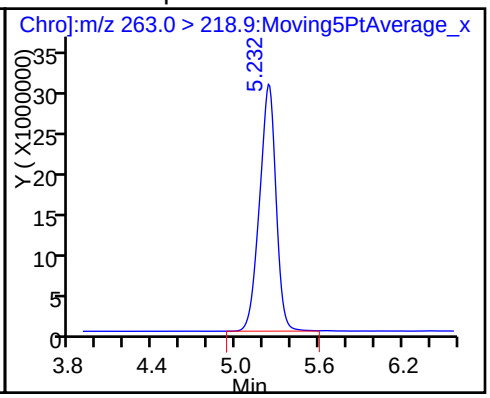
* 1 13C4 PFBA (IS)



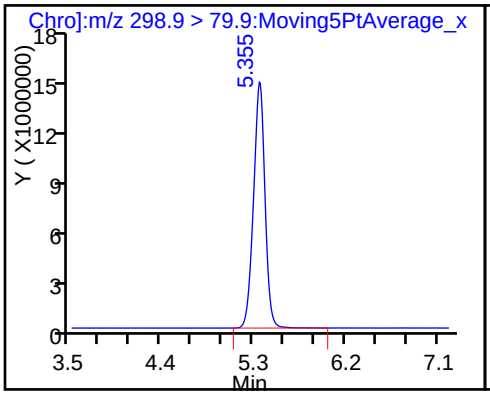
2 Perfluorobutyric acid



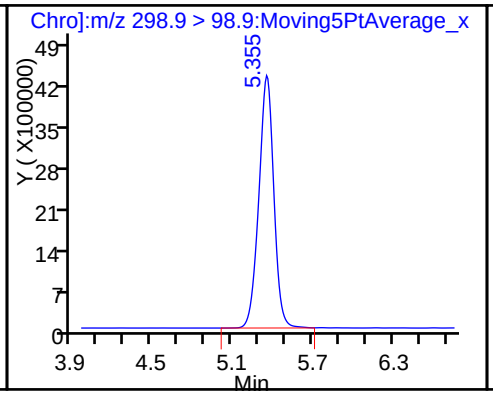
3 Perfluoropentanoic acid



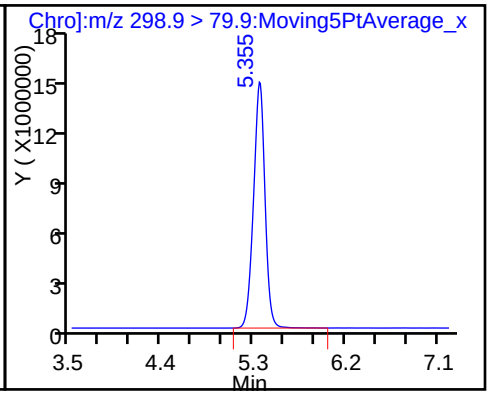
5 Perfluorobutanesulfonic acid



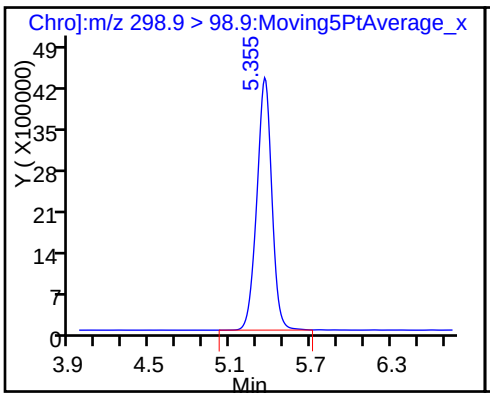
5 Perfluorobutanesulfonic acid



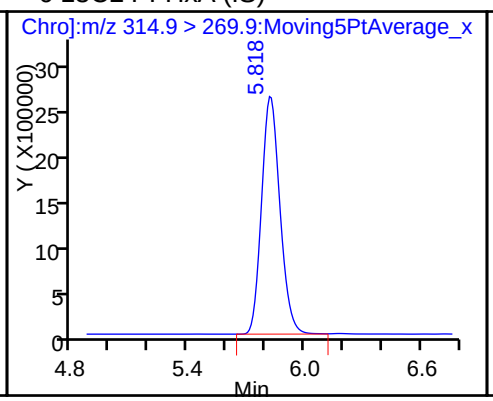
4 Perfluorobutane Sulfonate



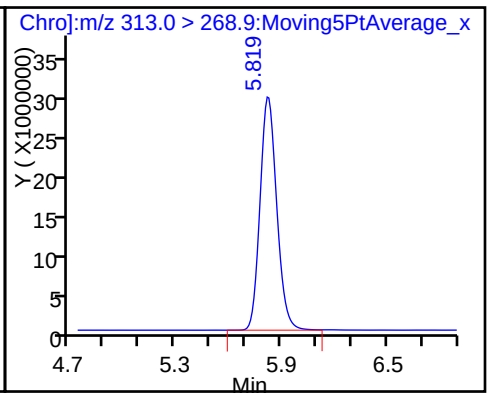
4 Perfluorobutane Sulfonate



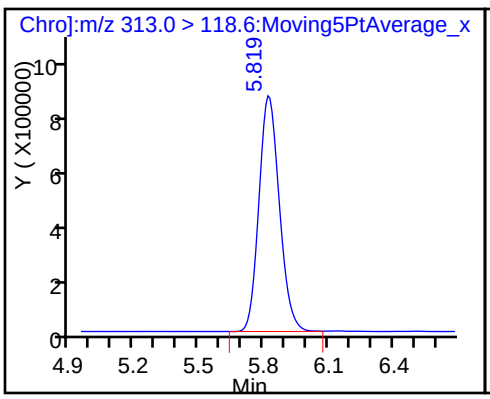
* 6 13C2 PFHxA (IS)



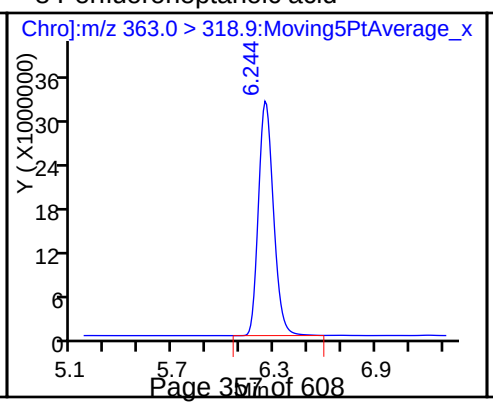
7 Perfluorohexanoic acid



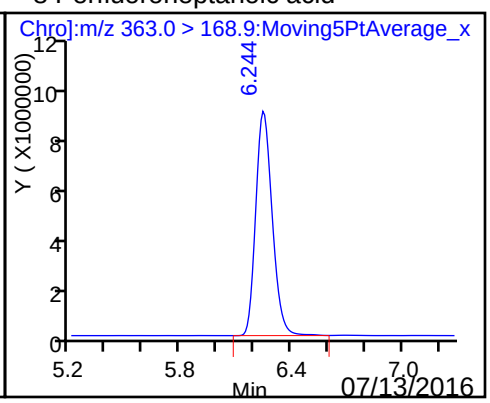
7 Perfluorohexanoic acid



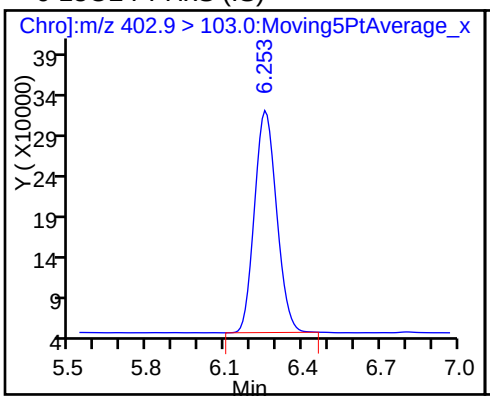
8 Perfluoroheptanoic acid



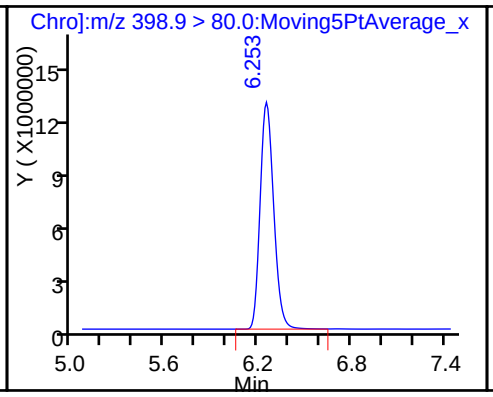
8 Perfluoroheptanoic acid



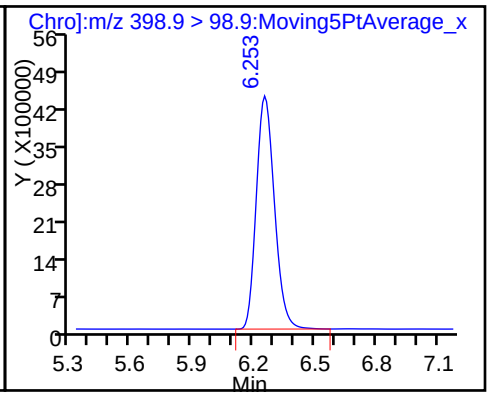
* 9 18O2 PFHxS (IS)



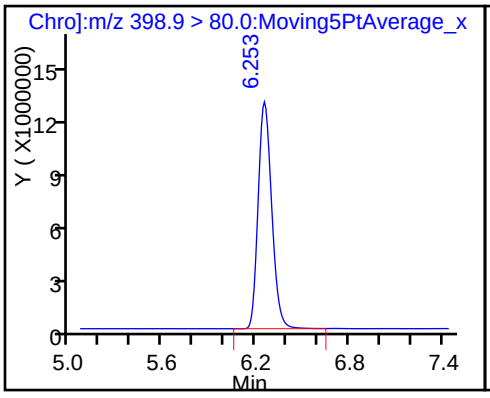
10 Perfluorohexane Sulfonate



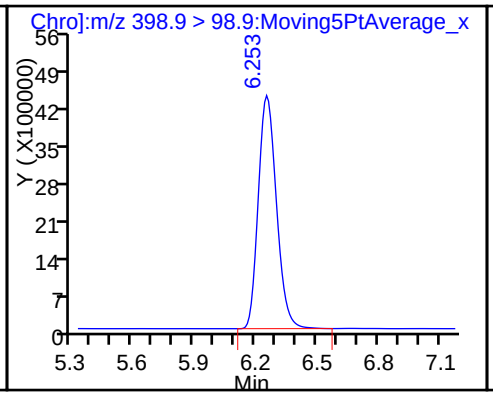
10 Perfluorohexane Sulfonate



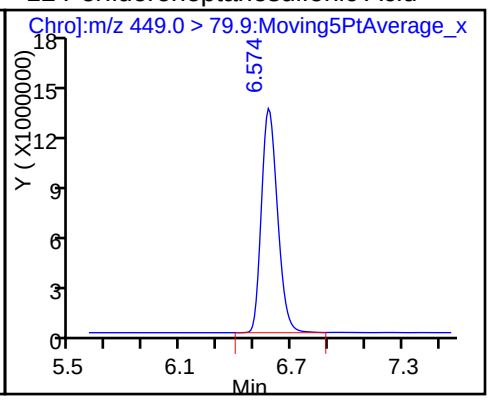
11 Perfluorohexanesulfonic acid



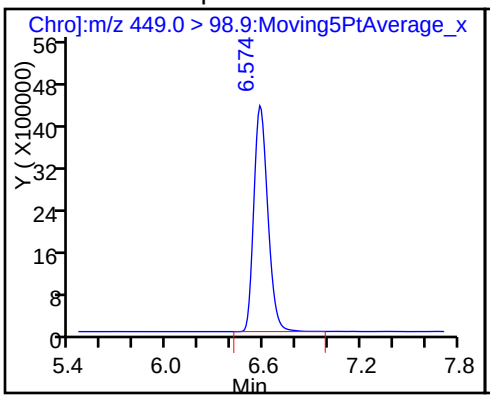
11 Perfluorohexanesulfonic acid



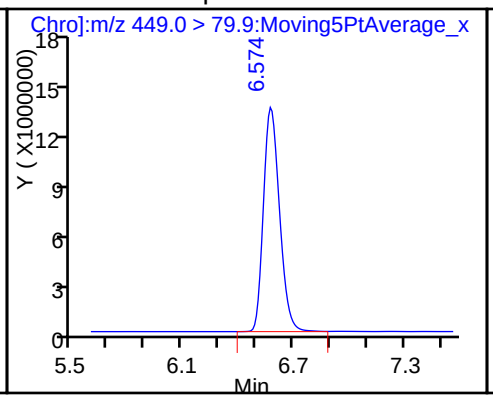
12 Perfluoroheptanesulfonic Acid



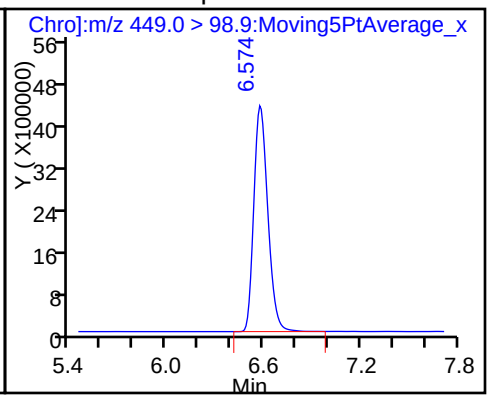
12 Perfluoroheptanesulfonic Acid



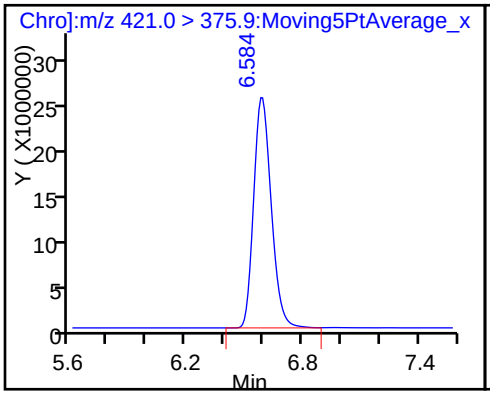
13 Perfluoroheptane Sulfonate



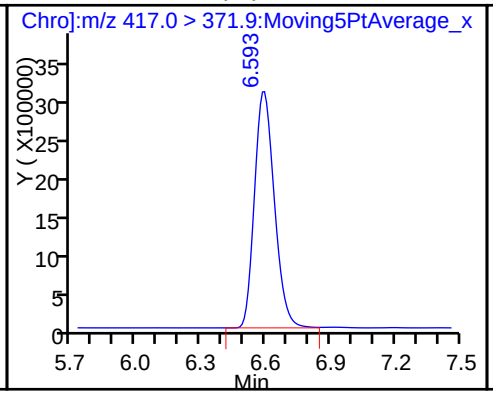
13 Perfluoroheptane Sulfonate



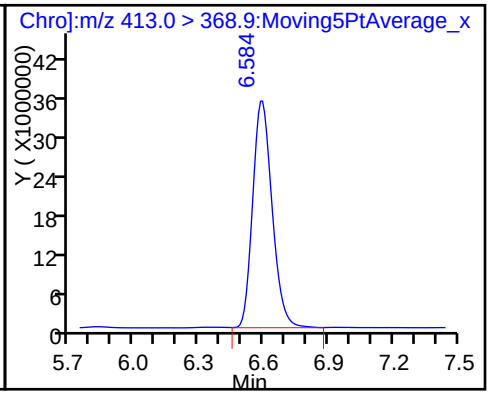
$ 14 13C8 PFOA



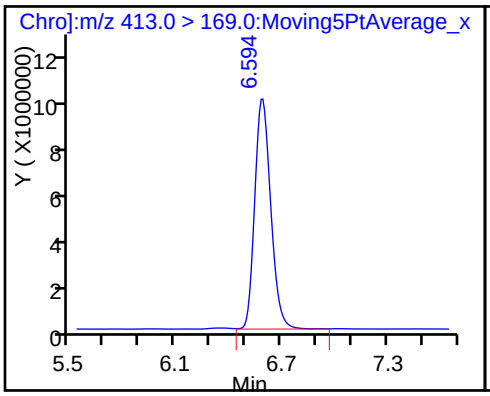
* 15 13C4 PFOA (IS)



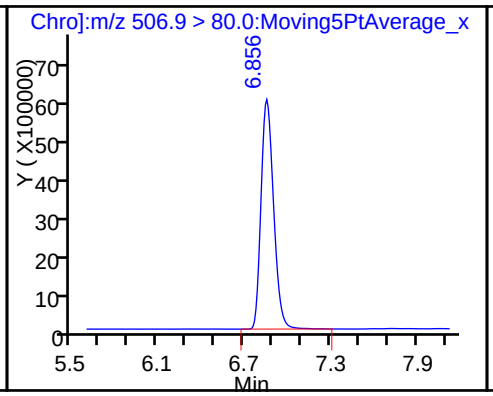
16 Perfluorooctanoic acid



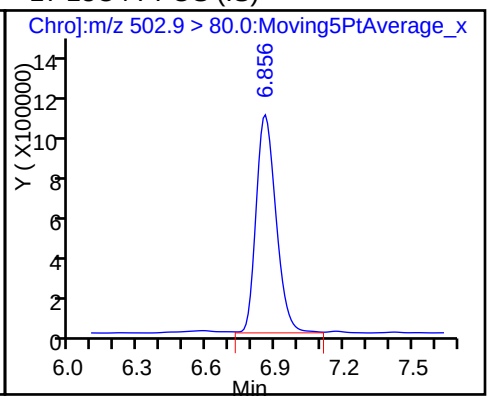
16 Perfluorooctanoic acid



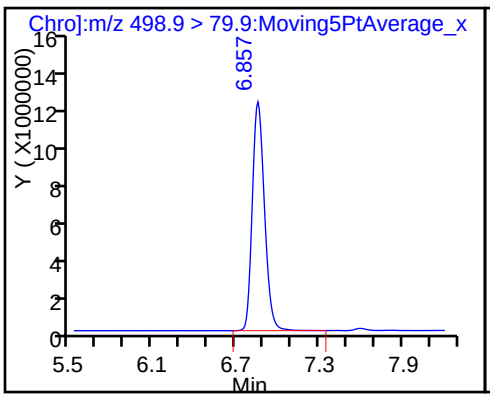
$ 18 13C8 PFOS



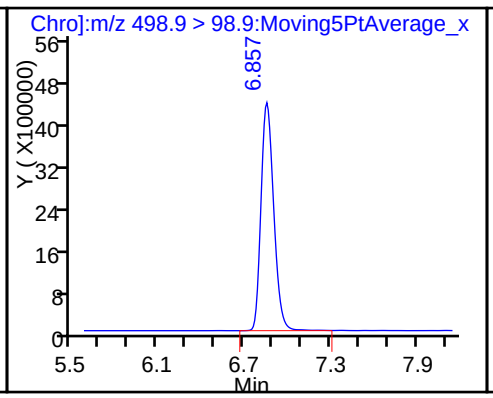
* 17 13C4 PFOS (IS)



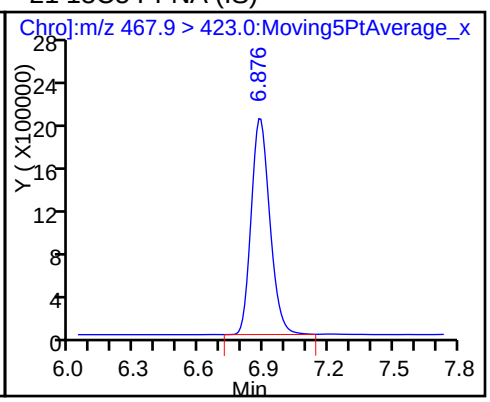
19 Perfluorooctane sulfonic acid



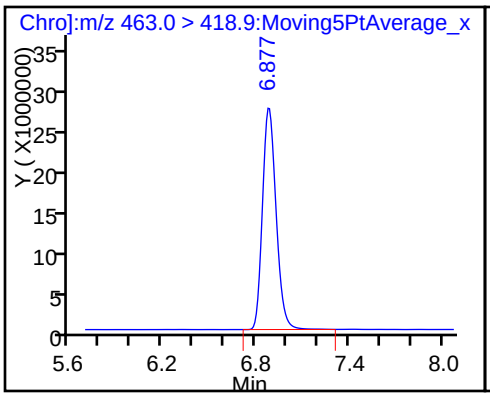
19 Perfluorooctane sulfonic acid



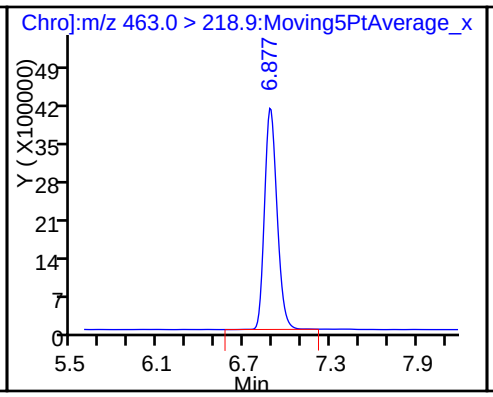
* 21 13C5 PFNA (IS)



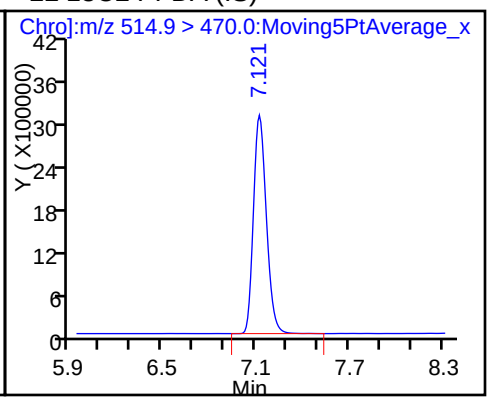
20 Perfluorononanoic acid



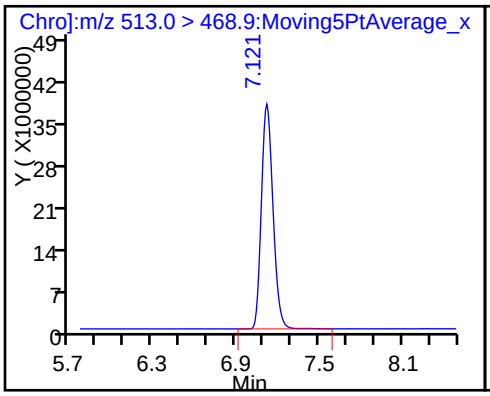
20 Perfluorononanoic acid



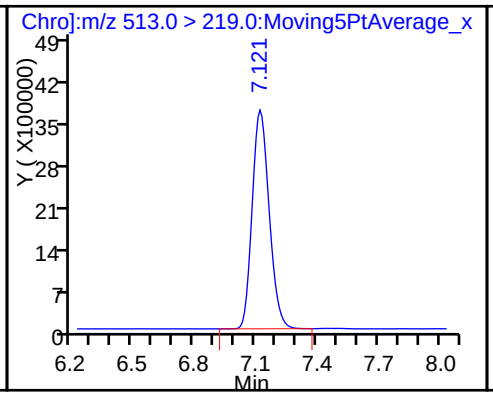
* 22 13C2 PFDA (IS)



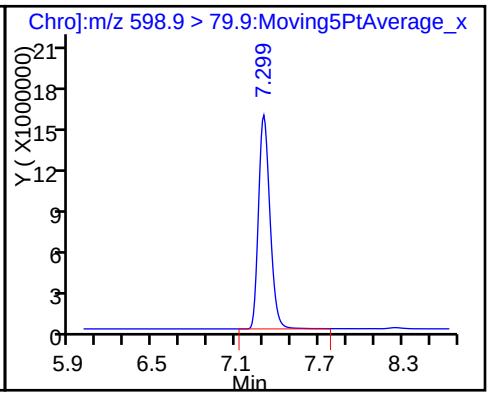
23 Perfluorodecanoic acid



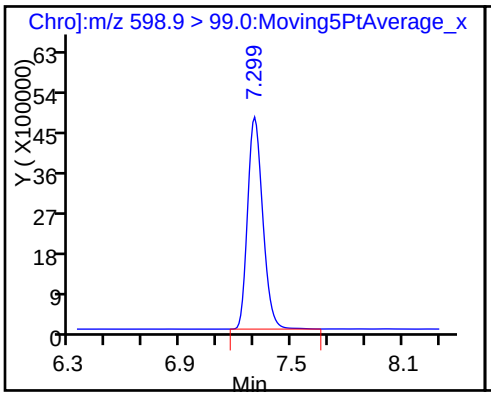
23 Perfluorodecanoic acid



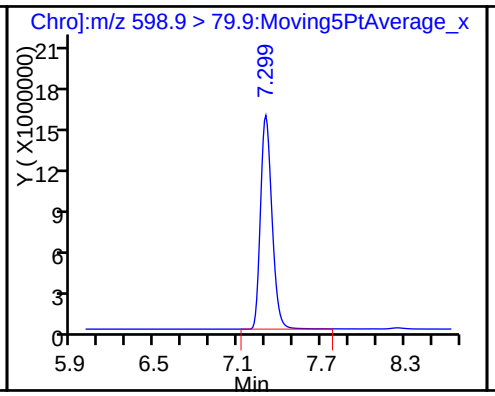
24 Perfluorodecane Sulfonic acid



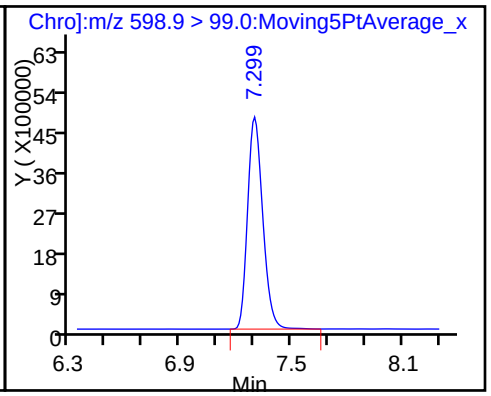
24 Perfluorodecane Sulfonic acid



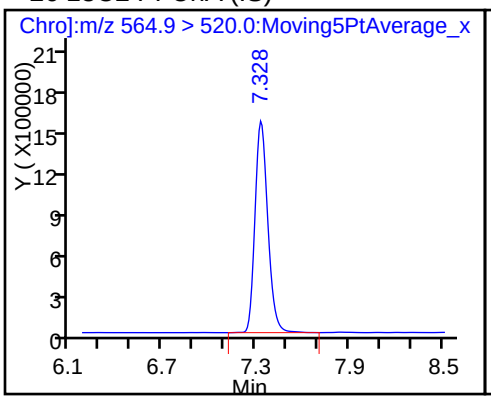
25 Perfluorodecane Sulfonate



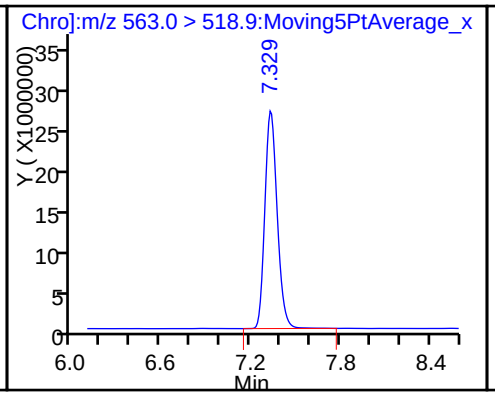
25 Perfluorodecane Sulfonate



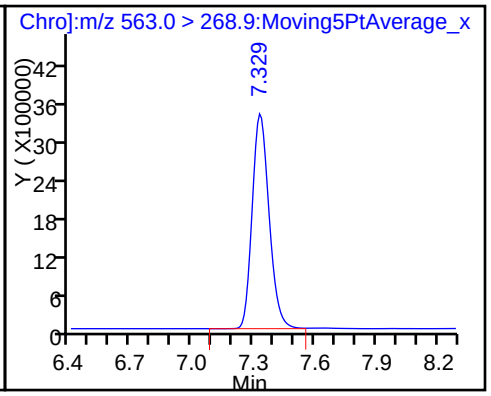
* 26 13C2 PFUnA (IS)



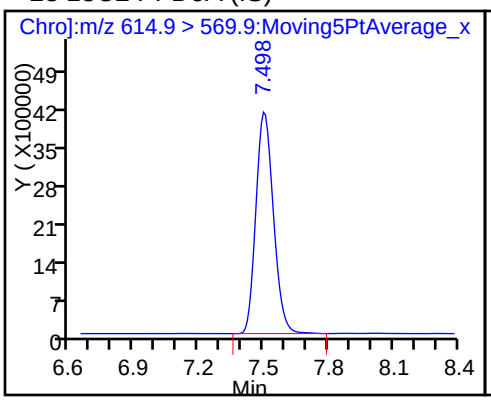
27 Perfluoroundecanoic acid



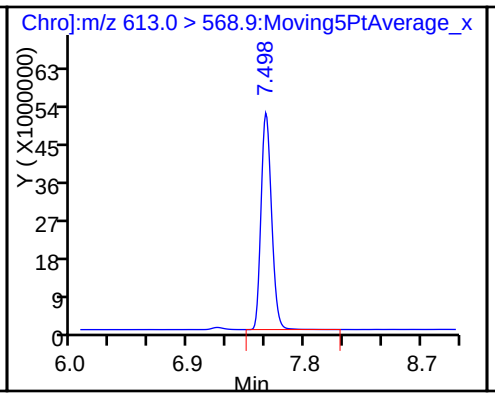
27 Perfluoroundecanoic acid



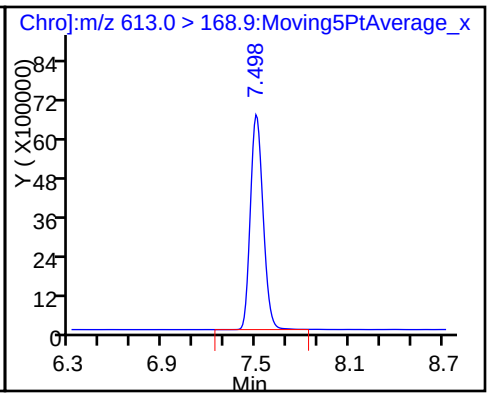
* 28 13C2 PFDoA (IS)



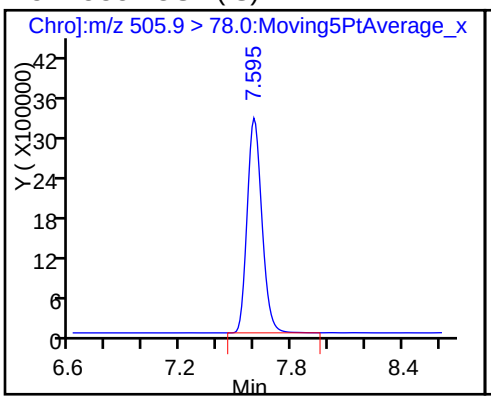
29 Perfluorododecanoic acid



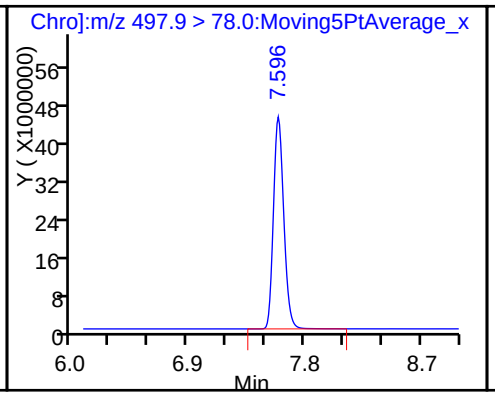
29 Perfluorododecanoic acid



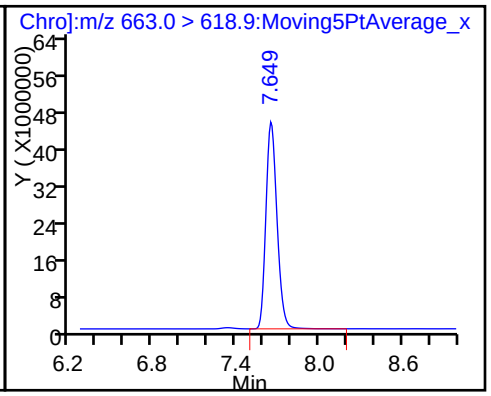
* 31 13C8 FOSA (IS)



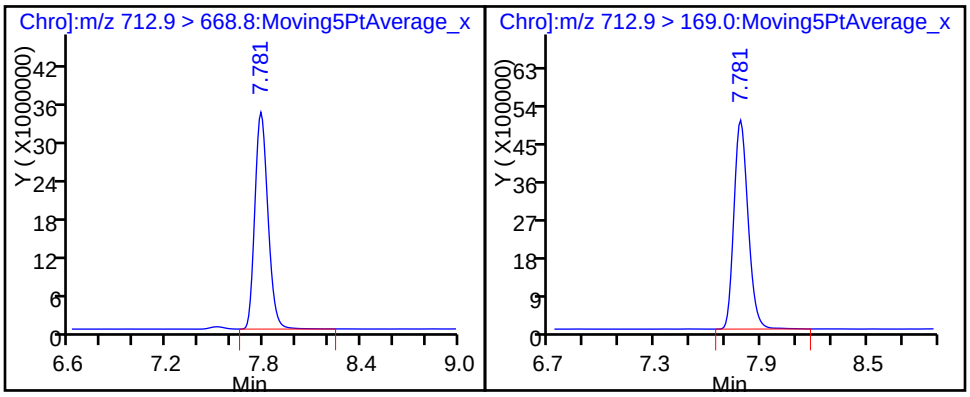
32 Perfluorooctane Sulfonamide



30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Lab Sample ID: ICV 280-328740/13 Calibration Date: 06/06/2016 16:53

Instrument ID: LC_LCMS5 Calib Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calib End Date: 06/06/2016 16:28

Lab File ID: PC516F06018.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	Lin2		1.068		1.99	2.00	-0.3	30.0
Perfluoropentanoic acid (PFPA)	Lin2		1.192		2.01	2.00	0.3	30.0
Perfluorobutane Sulfonate (PFBS)	Lin2		5.275		1.79	1.77	1.3	30.0
Perfluorobutanesulfonic acid	Lin2		5.275		1.79	1.77	1.3	30.0
Perfluorohexanoic acid (PFHxA)	Lin2		1.031		2.16	2.00	8.2	30.0
Perfluorohexane Sulfonate (PFHxS)	Lin2		4.421		2.01	1.82	10.5	30.0
Perfluorohexanesulfonic acid	Lin2		4.421		2.01	1.82	10.5	30.0
Perfluoroheptanoic acid (PFHpA)	Lin2		0.9850		2.24	2.00	11.9	30.0
Perfluoroheptane Sulfonate	Lin2		1.229		1.94	1.90	1.8	30.0
Perfluoroheptanesulfonic Acid (PFHpS)	Lin2		1.229		1.94	1.90	1.8	30.0
Perfluorooctanoic acid (PFOA)	Lin2		1.111		2.08	2.00	3.8	30.0
Perfluorooctanesulfonic acid (PFOS)	Lin2		1.331		2.22	2.00	10.8	30.0
Perfluorononanoic acid (PFNA)	Lin2		1.177		2.06	2.00	3.2	30.0
Perfluorodecanoic acid (PFDA)	Lin2		1.049		2.05	2.00	2.7	30.0
Perfluorodecane sulfonate (PFDS)	Lin2		1.196		1.83	1.93	-4.9	30.0
Perfluorodecane Sulfonic acid	Lin2		1.196		1.83	1.93	-4.9	30.0
Perfluoroundecanoic acid (PFUnA)	Lin2		1.377		1.90	2.00	-5.0	30.0
Perfluorododecanoic acid (PFDoA)	Lin2		1.036		1.97	2.00	-1.5	30.0
Perfluorooctane Sulfonamide (FOSA)	Lin2		1.131		2.08	2.00	3.8	30.0
Perfluorotridecanoic Acid (PFTriA)	Lin2		0.8932		1.86	2.00	-7.3	30.0
Perfluorotetradecanoic acid (PFTeA)	Lin2		0.6095		2.06	2.00	2.9	30.0
13C8 PFOA	Lin2		0.8307		10.3	10.0	2.8	30.0
13C8 PFOS	Lin2		0.5950		9.30	9.56	-2.7	30.0

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06018.d
Lims ID: ICV
Client ID:
Sample Type: ICV
Inject. Date: 06-Jun-2016 16:53:00 ALS Bottle#: 0 Worklist Smp#: 13
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: ICV, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub2

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 07-Jun-2016 14:09:37 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK003

First Level Reviewer: meyera Date: 07-Jun-2016 13:01:54

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.465	4.465	0.0		32017793	10.0			
2 Perfluorobutyric acid									M
213.0 > 168.9	4.465	4.465	0.0	1.000	6838874	1.99			M
3 Perfluoropentanoic acid									
263.0 > 218.9	5.336	5.336	0.0	0.907	5621809	2.01			
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.440	5.440	0.0	0.863	2478614	1.79			
298.9 > 98.9	5.450	5.440	0.010	0.865	814315		3.04(2.57-2.57)		
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.440	5.440	0.0	0.863	2478614	1.79			
298.9 > 98.9	5.450	5.440	0.010	0.865	814315		3.04(1.80-3.35)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.885	5.885	0.0		23574022	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.885	5.885	0.0	1.000	4860408	2.16			
313.0 > 118.6	5.876	5.885	-0.009	0.998	148939		32.63(34.05-63.23)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.292	6.292	0.0	0.949	6515774	2.24			
363.0 > 168.9	6.292	6.292	0.0	0.949	1577933		4.13(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.300	6.300	0.0		2511258	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.291	6.291	0.0	0.999	2138144	2.01			R
398.9 > 98.9	6.301	6.291	0.010	1.000	735033		2.91(1.30-2.41)		
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.291	6.291	0.0	0.999	2138144	2.01			
398.9 > 98.9	6.301	6.291	0.010	1.000	735033		2.91(1.85-1.85)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.621	6.621	0.0	0.959	2366786	1.94			
449.0 > 98.9	6.621	6.621	0.0	0.959	812675		2.91(0.00-0.00)		
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.621	6.621	0.0	0.959	2366786	1.94			
449.0 > 98.9	6.621	6.621	0.0	0.959	812675		2.91(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.631	6.631	0.0	1.000	27475708	10.3			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.631	6.631	0.0		33074850	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.632	6.632	0.0	1.000	7348842	2.08			
413.0 > 169.0	6.632	6.632	0.0	1.000	2155704		3.41(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.894	6.894	0.0	0.999	5752747	9.30			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.904	6.904	0.0		9669285	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.895	6.895	0.0	0.999	2692274	2.22			R
498.9 > 98.9	6.895	6.895	0.0	0.999	893875		3.01(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.914	6.914	0.0		25183863	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.924	6.924	0.0	1.001	5925743	2.06			
463.0 > 218.9	6.914	6.924	-0.010	1.000	1008448		5.88(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.158	7.158	0.0		27322567	10.0			
23 Perfluorodecanoic acid									R
513.0 > 468.9	7.159	7.159	0.0	1.000	5730976	2.05			R
513.0 > 219.0	7.159	7.159	0.0	1.000	575203		9.96(10.49-19.48)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.337	7.337	0.0	1.063	2332951	1.83			
598.9 > 99.0	7.337	7.337	0.0	1.063	660422		3.53(2.84-2.84)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.337	7.337	0.0	1.063	2332951	1.83			
598.9 > 99.0	7.337	7.337	0.0	1.063	660422		3.53(1.99-3.69)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.366	7.366	0.0		17486001	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.366	7.366	0.0	1.000	4817084	1.90			R
563.0 > 268.9	7.357	7.366	-0.009	0.999	609957		7.90(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.545	7.545	0.0		34783992	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.545	7.545	0.0	1.000	7204407	1.97			
613.0 > 168.9	7.545	7.545	0.0	1.000	1003485		7.18(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.642	7.642	0.0		26768431	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.643	7.643	0.0	1.000	6056968	2.08			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.696	7.696	0.0	1.020	6213513	1.85			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.829	7.829	0.0	1.038	4240024	2.06			
712.9 > 169.0	7.829	7.829	0.0	1.038	763420		5.55(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Review Flags

M - Manually Integrated

Reagents:

PFC_Surr_00021	Amount Added:	20.00	Units: uL
PFC-IS_00021	Amount Added:	20.00	Units: uL
PFC_ICV-2_00001	Amount Added:	20.00	Units: uL
PFHpS-LCS_00002	Amount Added:	4.00	Units: uL

Report Date: 07-Jun-2016 14:09:38 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06018.d

Injection Date: 06-Jun-2016 16:53:00 Instrument ID: LC_LCMS5

Lims ID: ICV

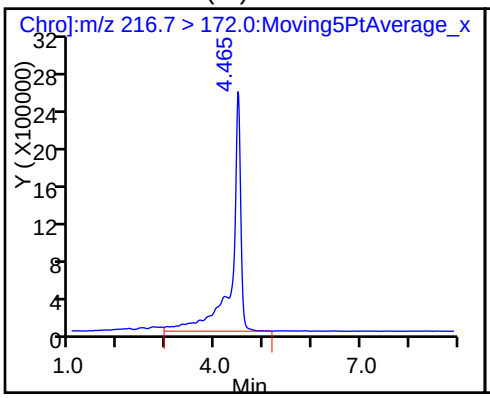
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 13

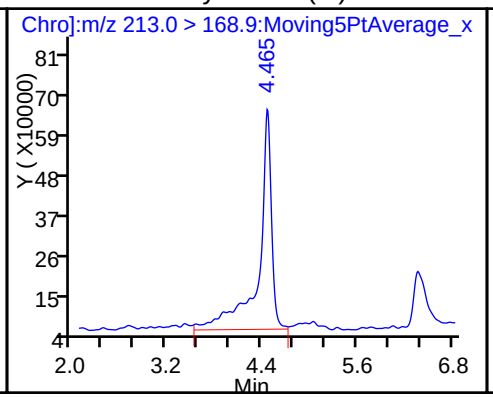
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

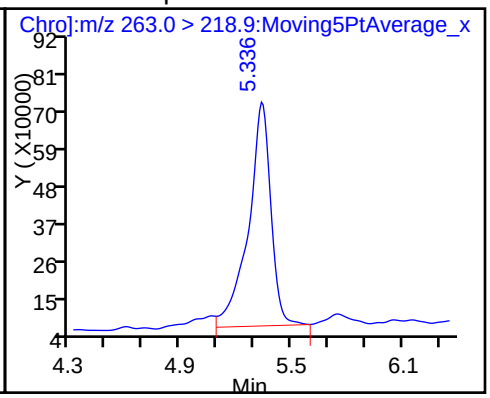
* 1 13C4 PFBA (IS)



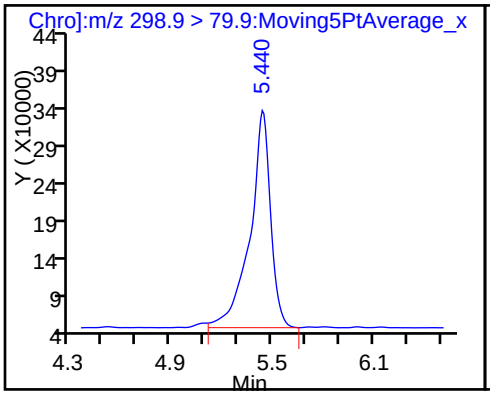
2 Perfluorobutyric acid (M)



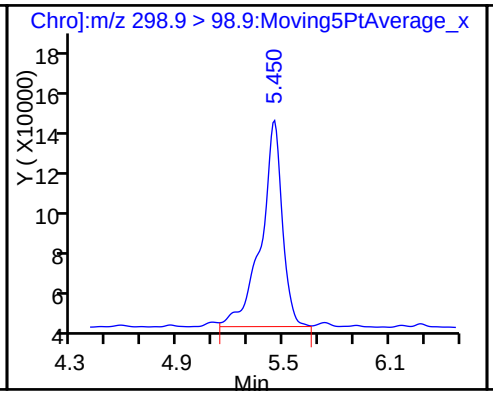
3 Perfluoropentanoic acid



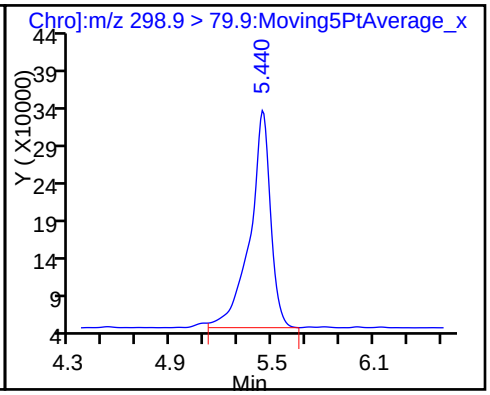
5 Perfluorobutanesulfonic acid



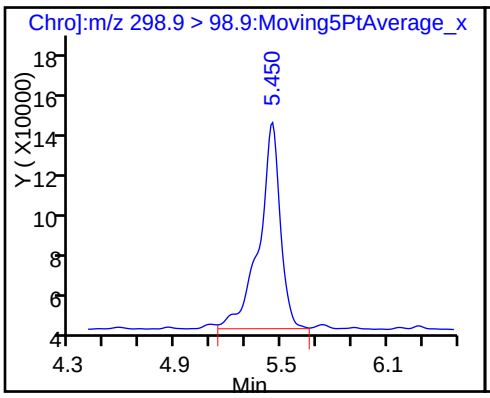
5 Perfluorobutanesulfonic acid



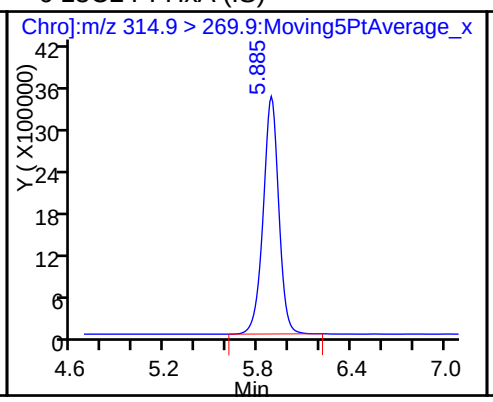
4 Perfluorobutane Sulfonate



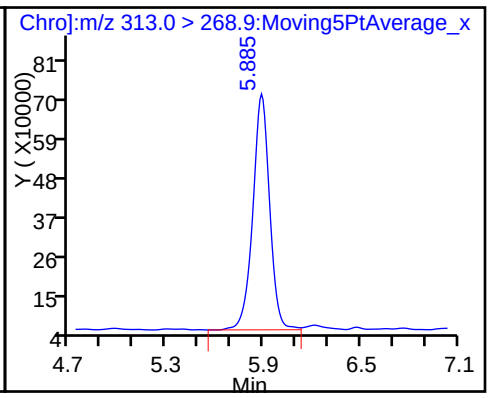
4 Perfluorobutane Sulfonate



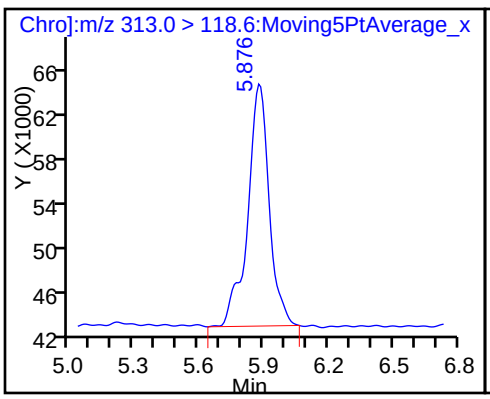
* 6 13C2 PFHxA (IS)



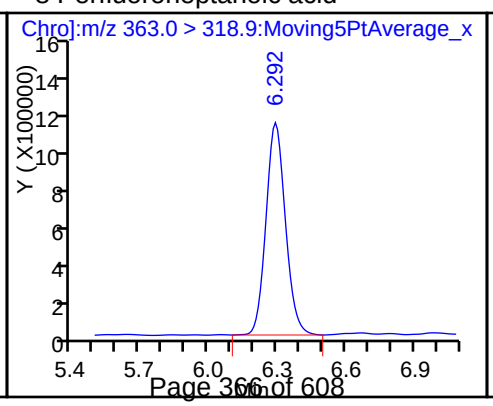
7 Perfluorohexanoic acid



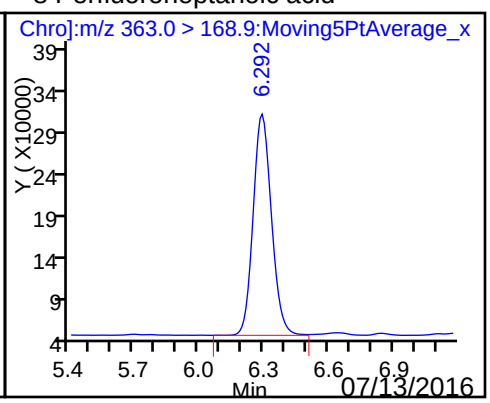
7 Perfluorohexanoic acid



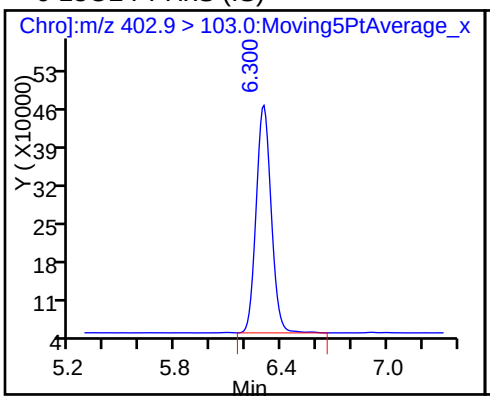
8 Perfluoroheptanoic acid



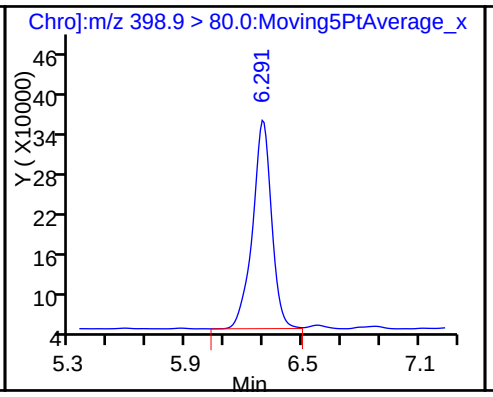
8 Perfluoroheptanoic acid



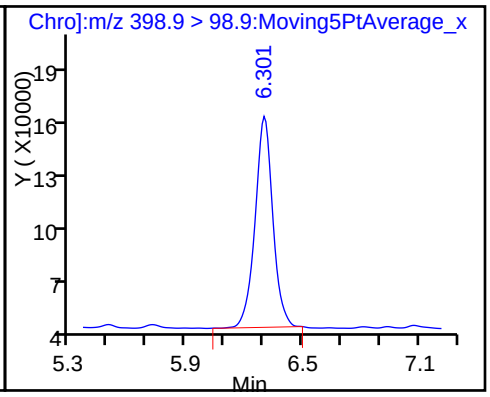
* 9 18O2 PFHxS (IS)



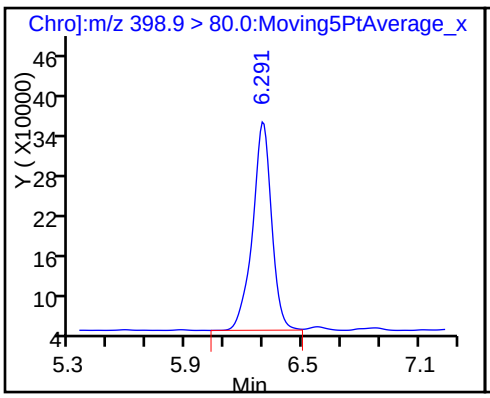
10 Perfluorohexane Sulfonate



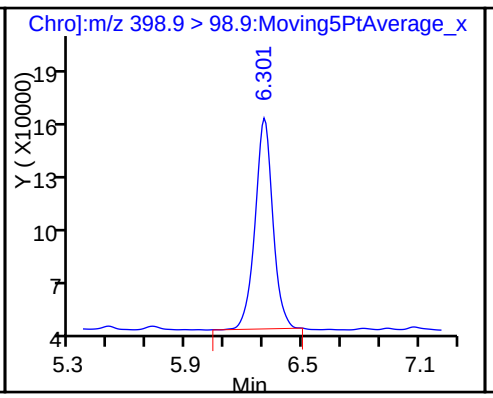
10 Perfluorohexane Sulfonate



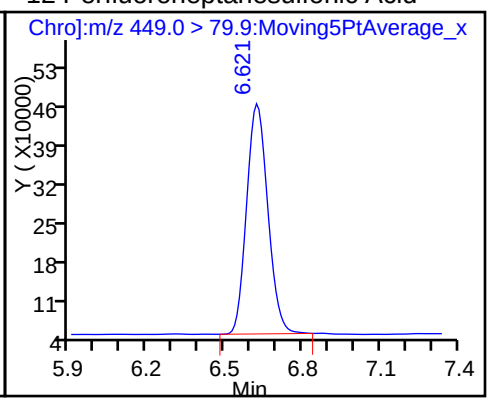
11 Perfluorohexanesulfonic acid



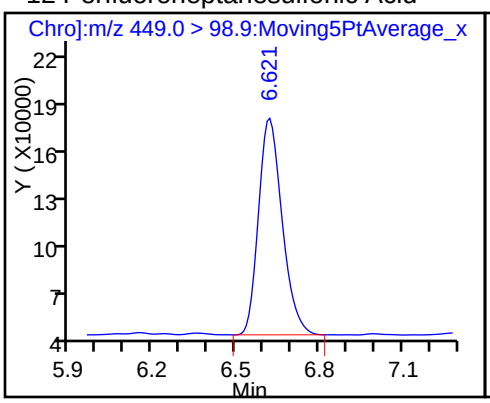
11 Perfluorohexanesulfonic acid



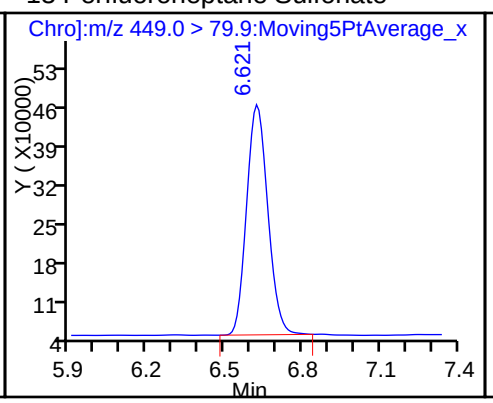
12 Perfluoroheptanesulfonic Acid



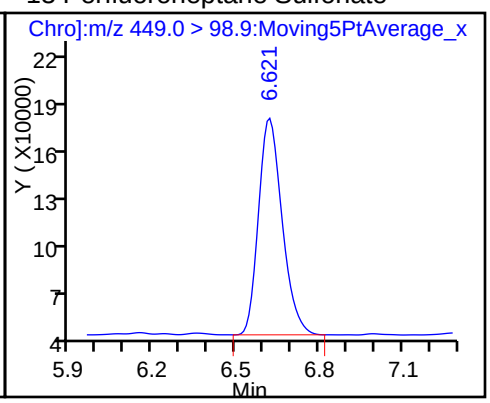
12 Perfluoroheptanesulfonic Acid



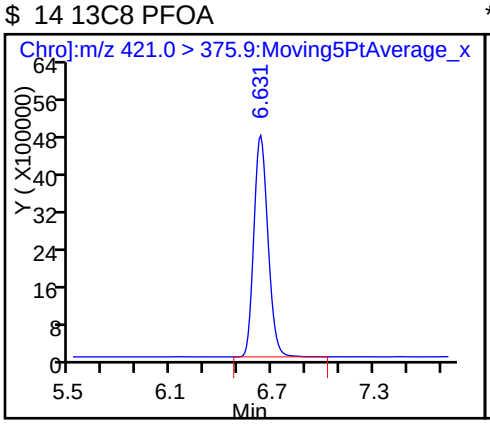
13 Perfluoroheptane Sulfonate



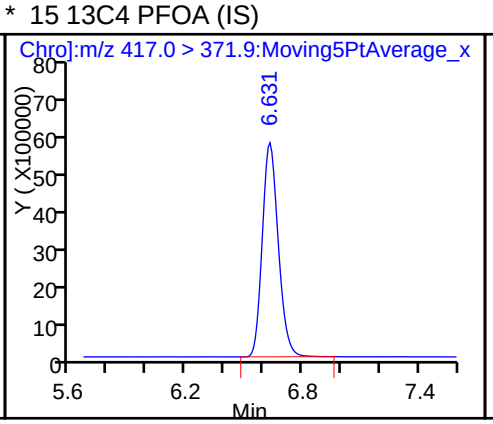
13 Perfluoroheptane Sulfonate



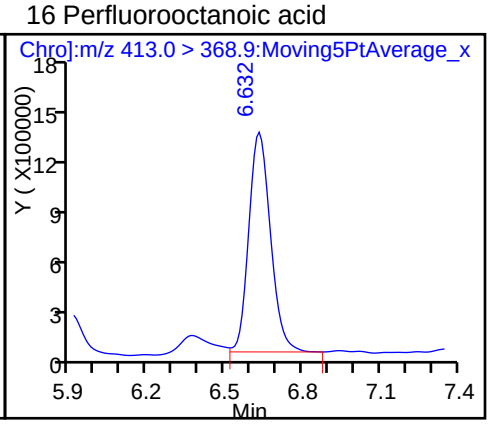
$ 14 13C8 PFOA



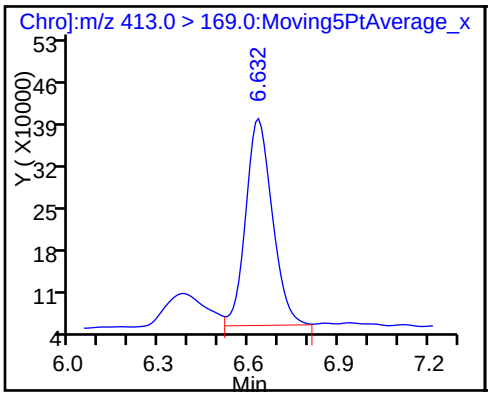
* 15 13C4 PFOA (IS)



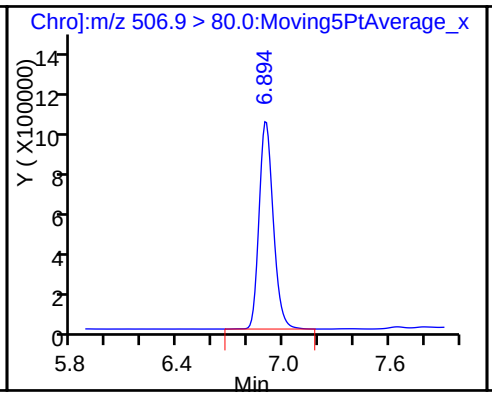
16 Perfluorooctanoic acid



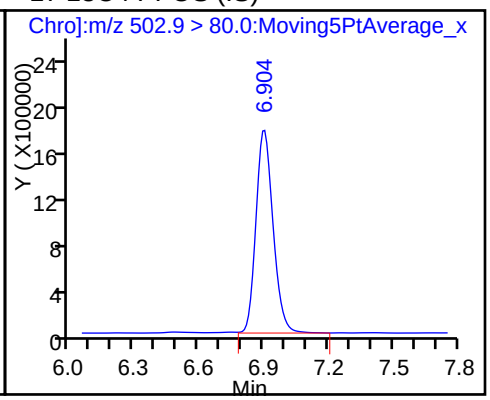
16 Perfluorooctanoic acid



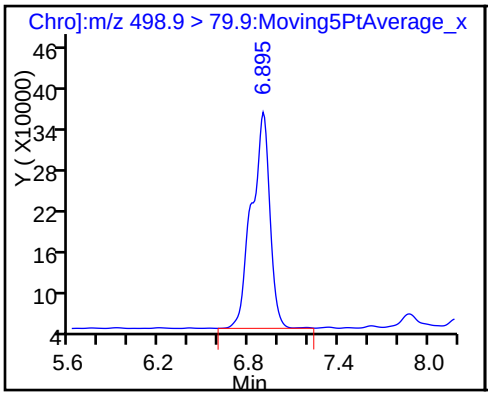
$ 18 13C8 PFOS



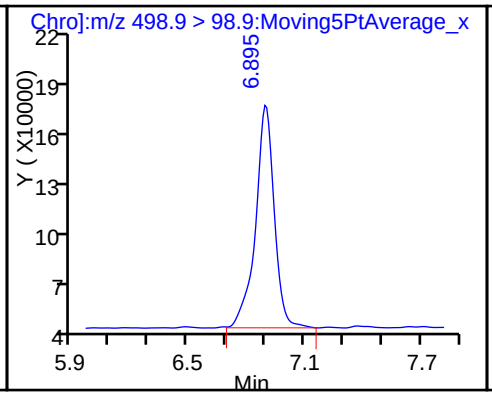
* 17 13C4 PFOS (IS)



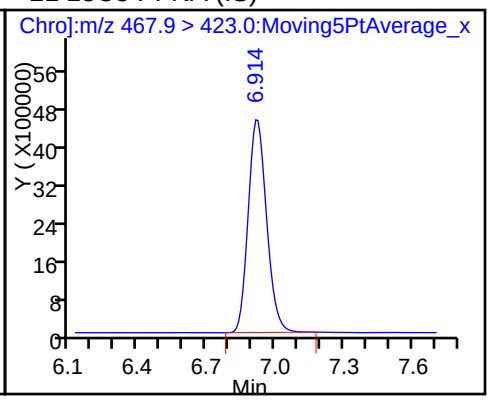
19 Perfluorooctane sulfonic acid



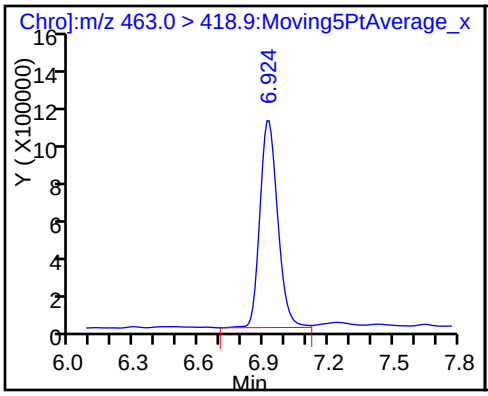
19 Perfluorooctane sulfonic acid



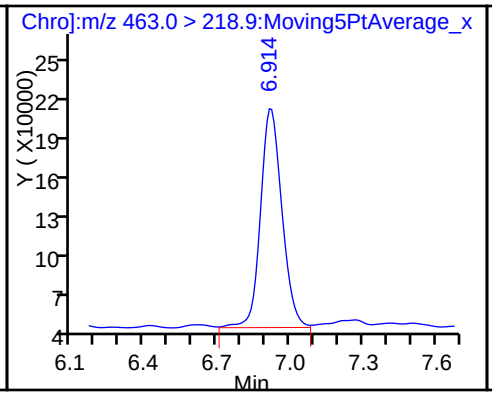
* 21 13C5 PFNA (IS)



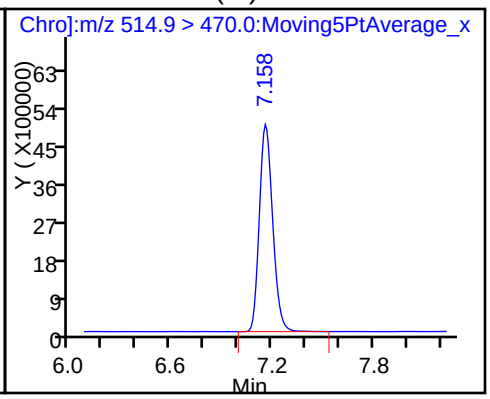
20 Perfluorononanoic acid



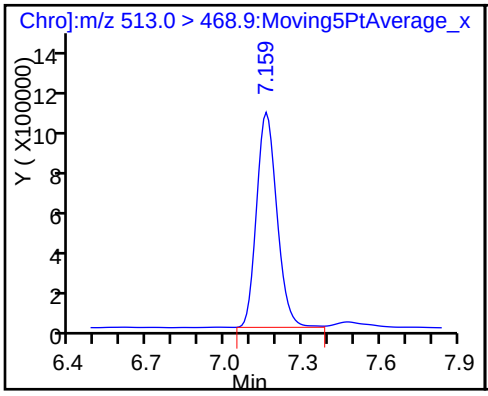
20 Perfluorononanoic acid



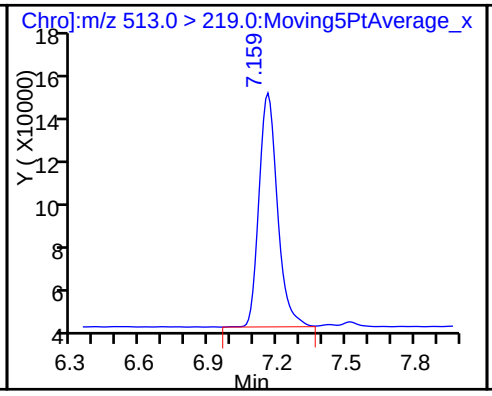
* 22 13C2 PFDA (IS)



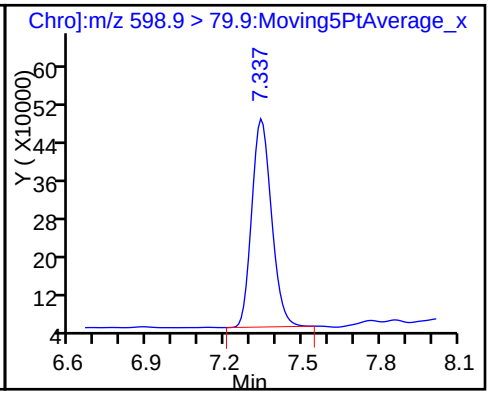
23 Perfluorodecanoic acid



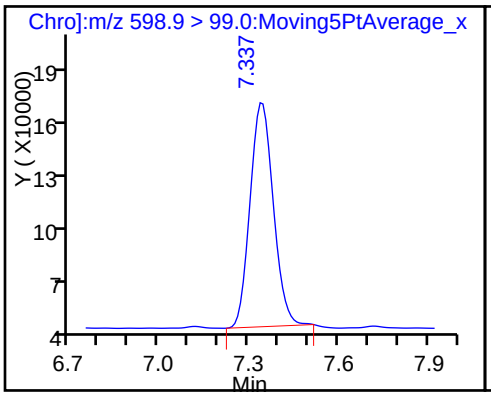
23 Perfluorodecanoic acid



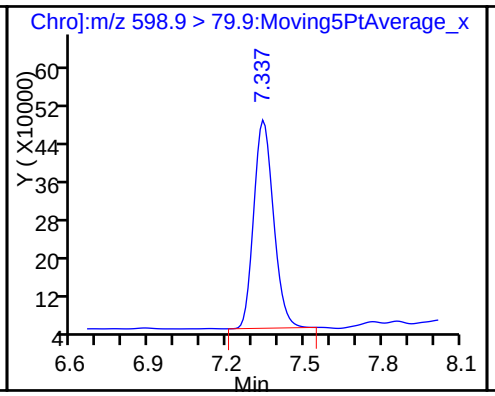
24 Perfluorodecane Sulfonic acid



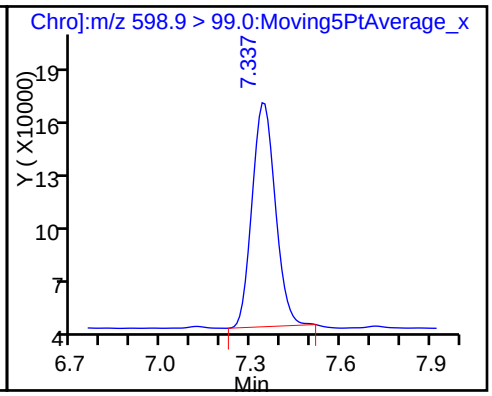
24 Perfluorodecane Sulfonic acid



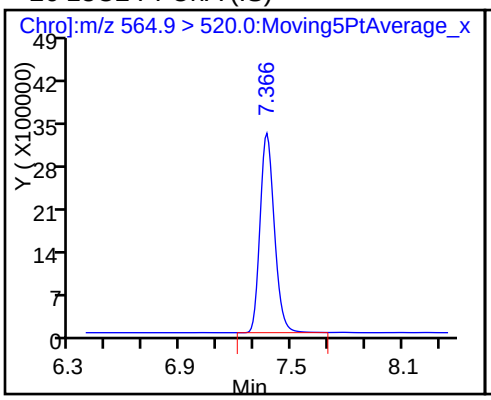
25 Perfluorodecane Sulfonate



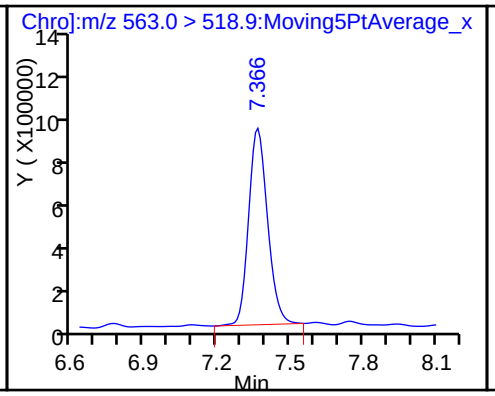
25 Perfluorodecane Sulfonate



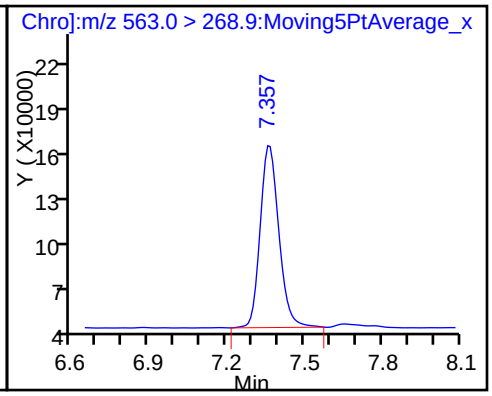
* 26 13C2 PFUnA (IS)



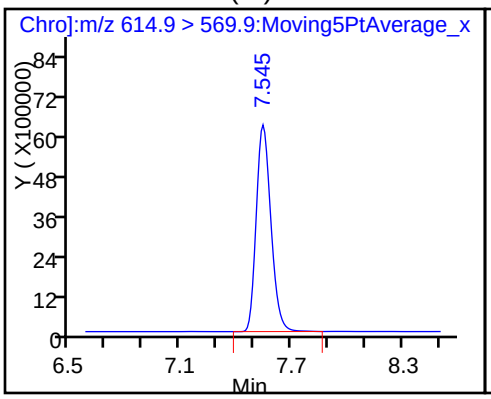
27 Perfluoroundecanoic acid



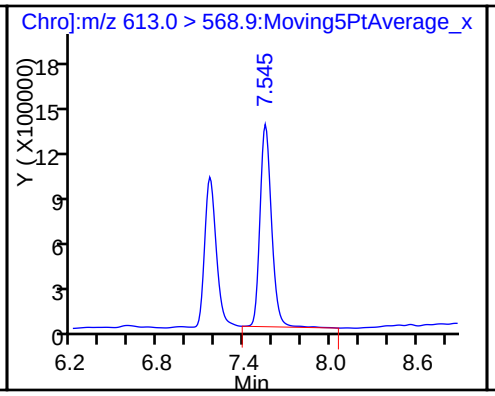
27 Perfluoroundecanoic acid



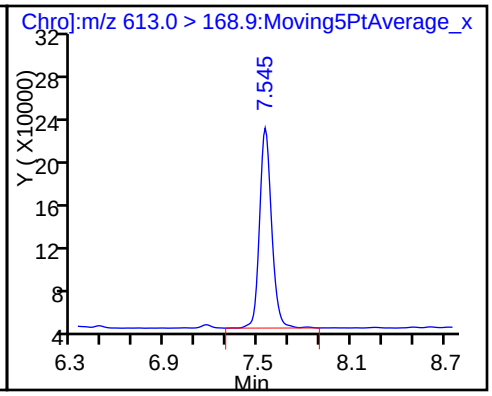
* 28 13C2 PFDoA (IS)



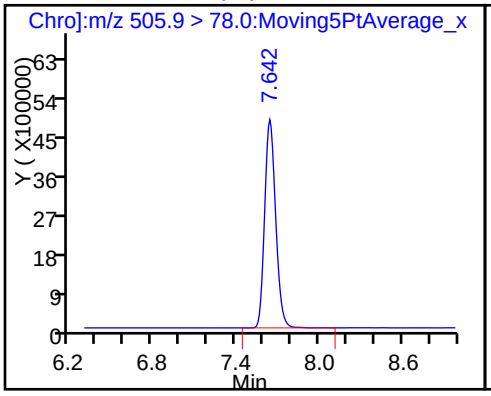
29 Perfluorododecanoic acid



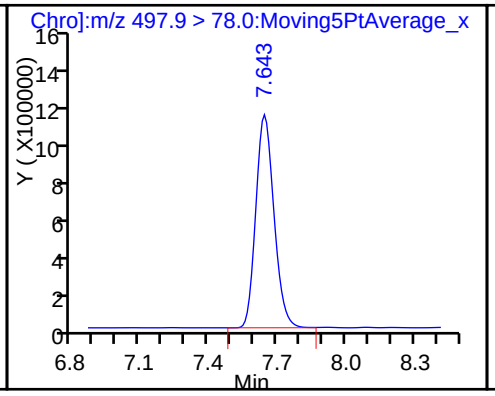
29 Perfluorododecanoic acid



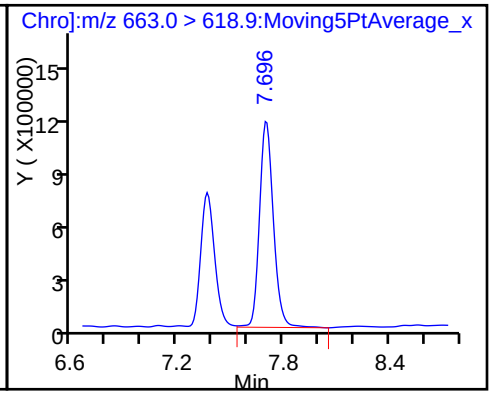
* 31 13C8 FOSA (IS)



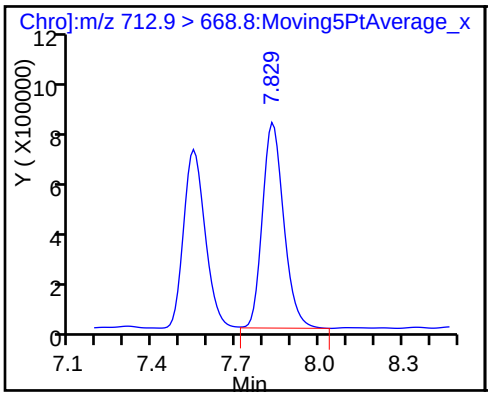
32 Perfluorooctane Sulfonamide



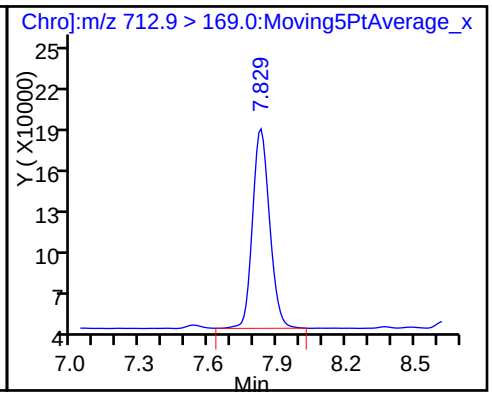
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



Manual Integration/User Assign Peak Report

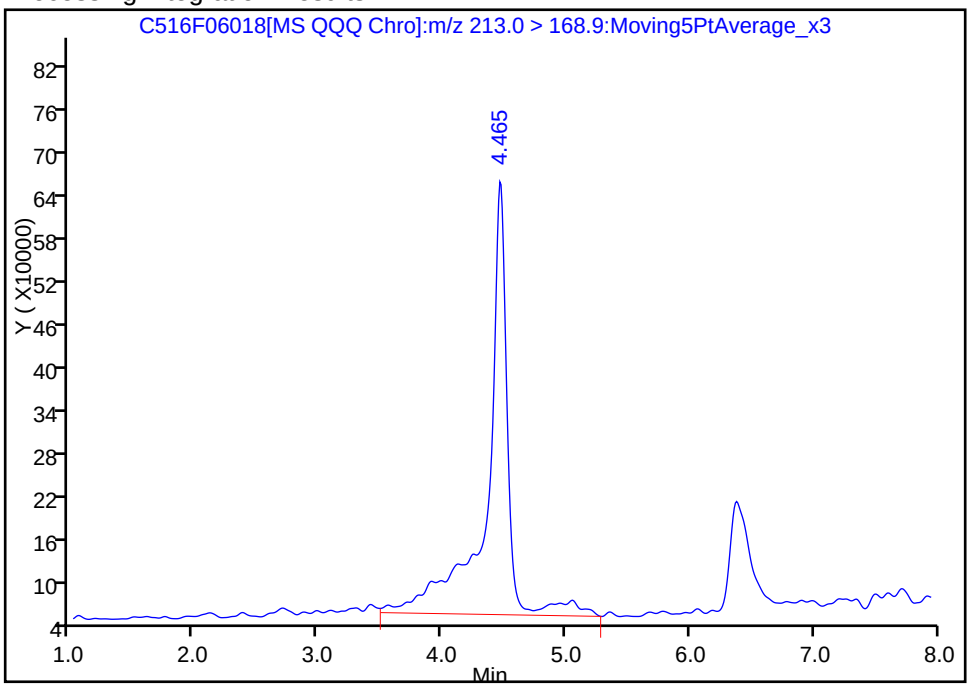
TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06018.d
Injection Date: 06-Jun-2016 16:53:00 Instrument ID: LC_LCMS5
Lims ID: ICV
Client ID:
Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 13
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Method: 8321_PFC Limit Group: LC - PFC
Column: Detector MS QQQ

2 Perfluorobutyric acid, CAS: 375-22-4

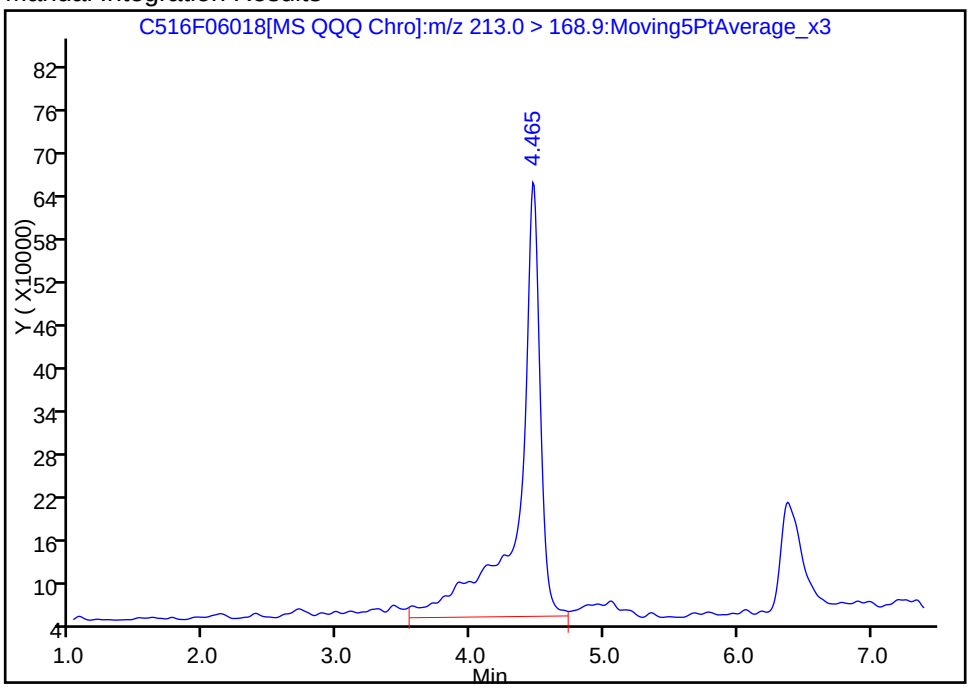
Processing Integration Results

RT: 4.47
Area: 7042596
Amount: 2.053296
Amount Units: ug/L



Manual Integration Results

RT: 4.47
Area: 6838874
Amount: 1.993999
Amount Units: ug/L



Reviewer: meyera, 07-Jun-2016 13:01:54
Audit Action: Manually Integrated
Audit Reason: Baseline

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Lab Sample ID: CCV 280-332793/3 Calibration Date: 07/07/2016 13:50

Instrument ID: LC_LCMS5 Calib Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calib End Date: 06/06/2016 16:28

Lab File ID: PC516G07038.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	Lin2		1.039		9.69	10.0	-3.1	30.0
Perfluoropentanoic acid (PFPA)	Lin2		1.248		10.6	10.0	6.1	30.0
Perfluorobutane Sulfonate (PFBS)	Lin2		4.472		7.58	8.85	-14.4	30.0
Perfluorobutanesulfonic acid	Lin2		4.472		7.58	8.85	-14.4	30.0
Perfluorohexanoic acid (PFHxA)	Lin2		0.9596		10.2	10.0	1.5	30.0
Perfluoroheptanoic acid (PFHpA)	Lin2		0.8672		9.97	10.0	-0.3	30.0
Perfluorohexane Sulfonate (PFHxS)	Lin2		4.020		9.82	9.45	3.9	30.0
Perfluorohexanesulfonic acid	Lin2		4.020		9.82	9.45	3.9	30.0
Perfluoroheptane Sulfonate	Lin2		1.098		8.63	9.52	-9.4	30.0
Perfluoroheptanesulfonic Acid (PFHpS)	Lin2		1.098		8.63	9.52	-9.4	30.0
Perfluorooctanoic acid (PFOA)	Lin2		1.061		10.2	10.0	1.9	30.0
Perfluorooctanesulfonic acid (PFOS)	Lin2		1.103		8.99	9.55	-5.9	30.0
Perfluorononanoic acid (PFNA)	Lin2		1.091		9.73	10.0	-2.7	30.0
Perfluorodecanoic acid (PFDA)	Lin2		0.9856		9.78	10.0	-2.2	30.0
Perfluorodecane sulfonate (PFDS)	Lin2		1.114		8.69	9.65	-10.0	30.0
Perfluorodecane Sulfonic acid	Lin2		1.114		8.69	9.65	-10.0	30.0
Perfluoroundecanoic acid (PFUnA)	Lin2		1.411		9.96	10.0	-0.5	30.0
Perfluorododecanoic acid (PFDoA)	Lin2		1.066		10.4	10.0	3.8	30.0
Perfluorooctane Sulfonamide (FOSA)	Lin2		1.088		10.0	10.0	0.2	30.0
Perfluorotridecanoic Acid (PFTriA)	Lin2		0.9057		9.73	10.0	-2.7	30.0
Perfluorotetradecanoic acid (PFTeA)	Lin2		0.7149		12.1	10.0	21.0	30.0
13C8 PFOA	Lin2		0.8532		10.6	10.0	5.5	30.0
13C8 PFOS	Lin2		0.6250		9.77	9.56	2.2	30.0

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07038.d
Lims ID: CCV PFC L6
Client ID:
Sample Type: CCV
Inject. Date: 07-Jul-2016 13:50:46 ALS Bottle#: 0 Worklist Smp#: 3
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: CCV PFC L6, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 08-Jul-2016 09:15:01 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK002

First Level Reviewer: fiedlerh Date: 08-Jul-2016 07:54:31

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.569	4.569	0.0		34339325	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	4.570	4.570	0.0	1.000	35676271	9.69			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.592	5.592	0.0	0.911	27326477	10.6			
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.705	5.705	0.0	0.873	11189944	7.58			
298.9 > 98.9	5.705	5.705	0.0	0.873	3450118		3.24(1.80-3.35)		
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.705	5.705	0.0	0.873	11189944	7.58			
298.9 > 98.9	5.705	5.705	0.0	0.873	3450118		3.24(2.57-2.57)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	6.141	6.141	0.0		21901297	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	6.141	6.141	0.0	1.000	21017077	10.1			
313.0 > 118.6	6.141	6.141	0.0	1.000	574541		36.58(34.05-63.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.537	6.537	0.0		2674404	9.46			
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.538	6.538	0.0	1.000	10741029	9.82			
398.9 > 98.9	6.538	6.538	0.0	1.000	3586448		2.99(1.85-1.85)		
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.538	6.538	0.0	1.000	10741029	9.82			R
398.9 > 98.9	6.538	6.538	0.0	1.000	3586448		2.99(1.30-2.41)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.538	6.538	0.0	0.952	30533749	9.97			
363.0 > 168.9	6.538	6.538	0.0	0.952	7644089		3.99(3.35-6.23)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.858	6.858	0.0	0.962	10882621	8.62			
449.0 > 98.9	6.867	6.858	0.009	0.963	3461111		3.14(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.858	6.858	0.0	0.962	10882621	8.62			
449.0 > 98.9	6.867	6.858	0.009	0.963	3461111		3.14(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.868	6.868	0.0	1.000	30040889	10.6			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.868	6.868	0.0		35211020	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.868	6.868	0.0	1.000	37370207	10.2			
413.0 > 169.0	6.868	6.868	0.0	1.000	11476248		3.26(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	7.131	7.131	0.0	1.000	6221546	9.77			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	7.131	7.131	0.0		9955311	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	7.131	7.131	0.0	1.000	10971347	8.99			R
498.9 > 98.9	7.131	7.131	0.0	1.000	3889276		2.82(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	7.160	7.160	0.0		24676044	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	7.151	7.151	0.0	0.999	26930214	9.73			
463.0 > 218.9	7.161	7.151	0.010	1.000	4004229		6.73(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.386	7.386	0.0		26933680	10.0			
23 Perfluorodecanoic acid									R
513.0 > 468.9	7.386	7.386	0.0	1.000	26544887	9.78			R
513.0 > 219.0	7.386	7.386	0.0	1.000	2808725		9.45(10.49-19.48)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.555	7.555	0.0	1.059	11192644	8.69			
598.9 > 99.0	7.555	7.555	0.0	1.059	3577828		3.13(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.555	7.555	0.0	1.059	11192644	8.69			
598.9 > 99.0	7.555	7.555	0.0	1.059	3577828		3.13(2.84-2.84)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.584	7.584	0.0		16415747	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.584	7.584	0.0	1.000	23161425	9.95			R
563.0 > 268.9	7.584	7.584	0.0	1.000	2949877		7.85(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.753	7.753	0.0		35448766	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.754	7.754	0.0	1.000	37802721	10.4			
613.0 > 168.9	7.754	7.754	0.0	1.000	4577466		8.26(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.870	7.870	0.0		29177054	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.871	7.871	0.0	1.000	31736906	10.0			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.895	7.895	0.0	1.018	32105058	9.73			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	8.027	8.027	0.0	1.035	25342929	12.1			
712.9 > 169.0	8.027	8.027	0.0	1.035	3869601		6.55(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Reagents:

PFC-LCS_00078	Amount Added: 20.00	Units: uL
PFC_Surr_00021	Amount Added: 20.00	Units: uL
PFC-IS_00021	Amount Added: 20.00	Units: uL

Report Date: 08-Jul-2016 09:15:02 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07038.d

Injection Date: 07-Jul-2016 13:50:46 Instrument ID: LC_LCMS5

Lims ID: CCV PFC L6

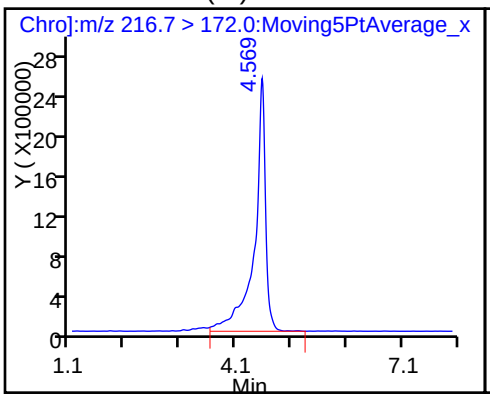
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 3

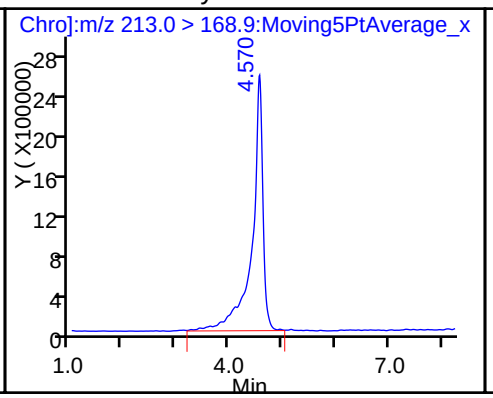
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

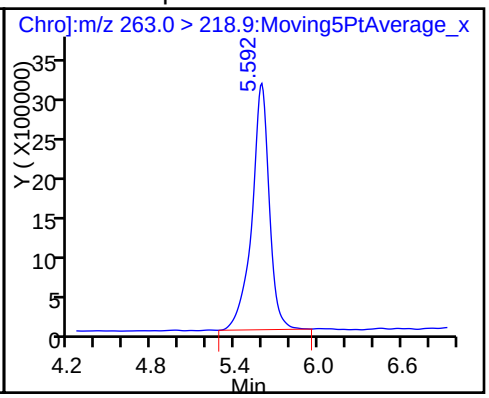
* 1 13C4 PFBA (IS)



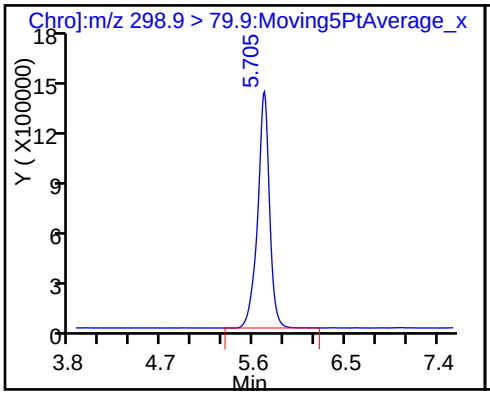
2 Perfluorobutyric acid



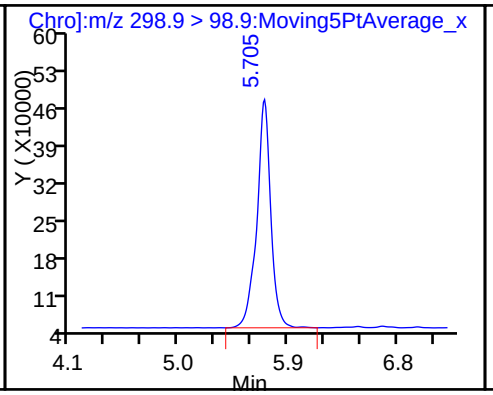
3 Perfluoropentanoic acid



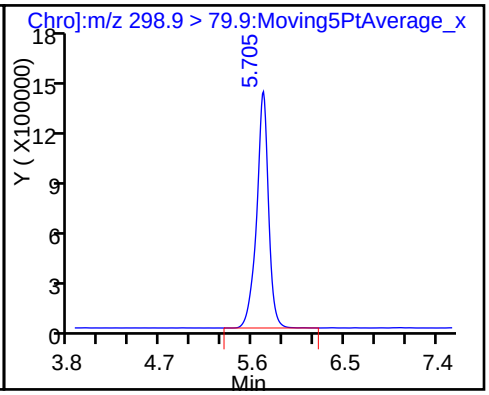
4 Perfluorobutane Sulfonate



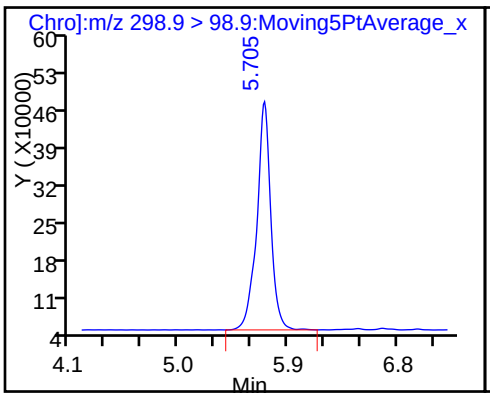
4 Perfluorobutane Sulfonate



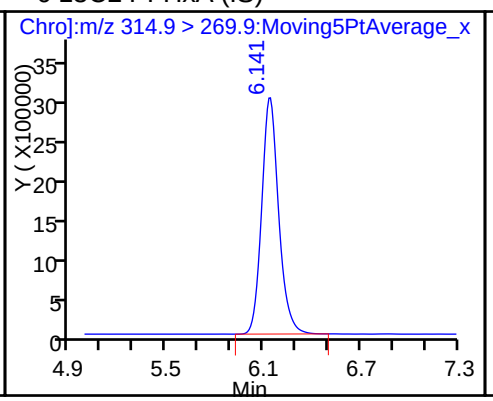
5 Perfluorobutanesulfonic acid



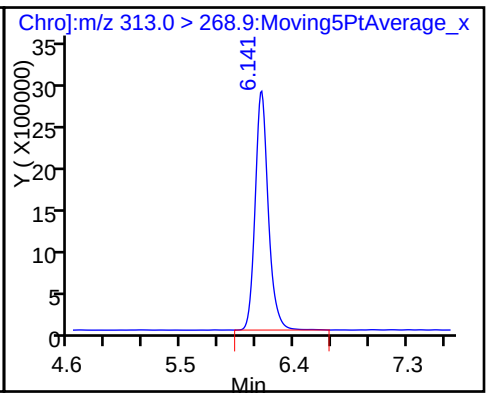
5 Perfluorobutanesulfonic acid



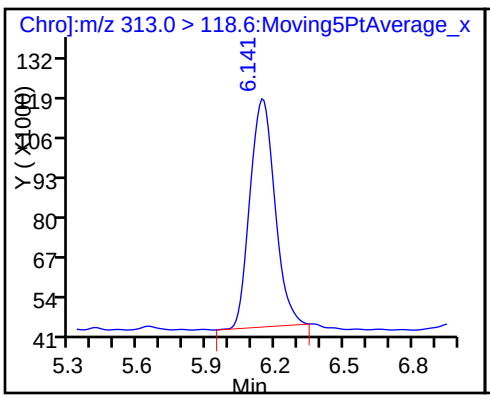
* 6 13C2 PFHxA (IS)



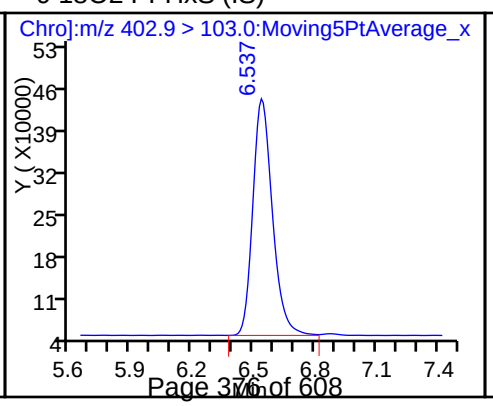
7 Perfluorohexanoic acid



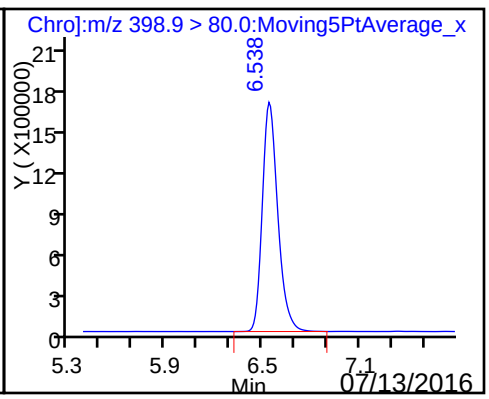
7 Perfluorohexanoic acid



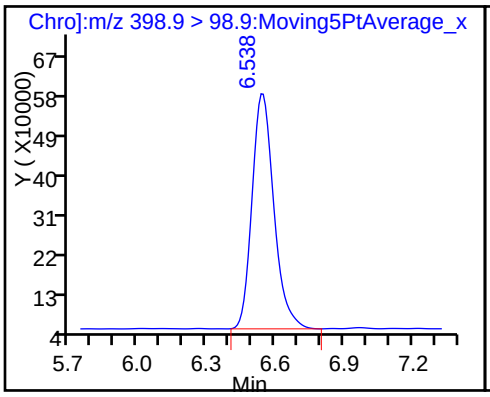
* 9 18O2 PFHxS (IS)



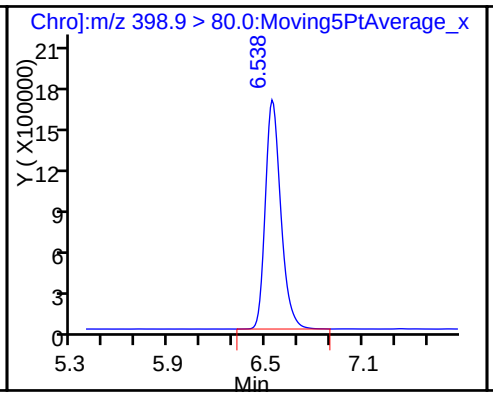
11 Perfluorohexanesulfonic acid



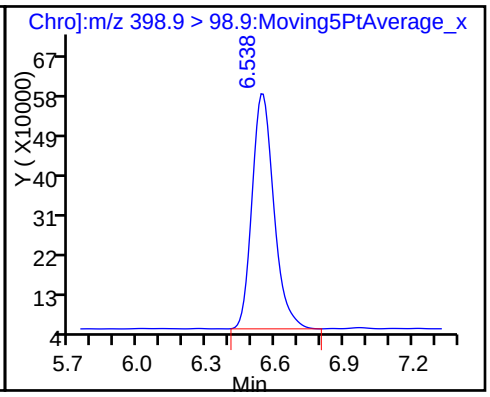
11 Perfluorohexanesulfonic acid



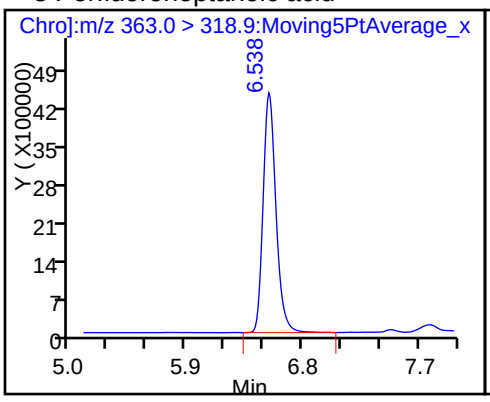
10 Perfluorohexane Sulfonate



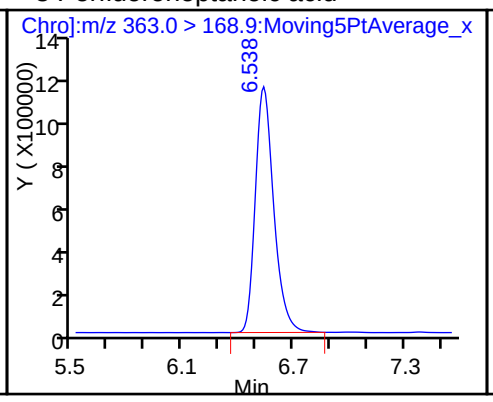
10 Perfluorohexane Sulfonate



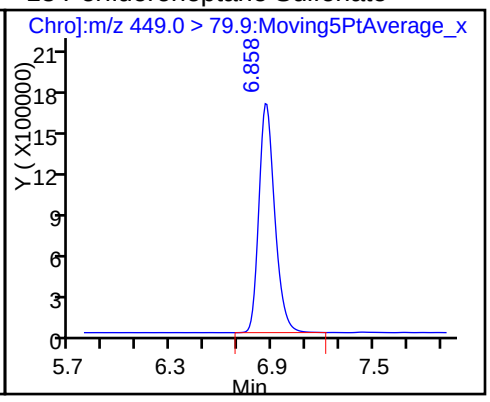
8 Perfluoroheptanoic acid



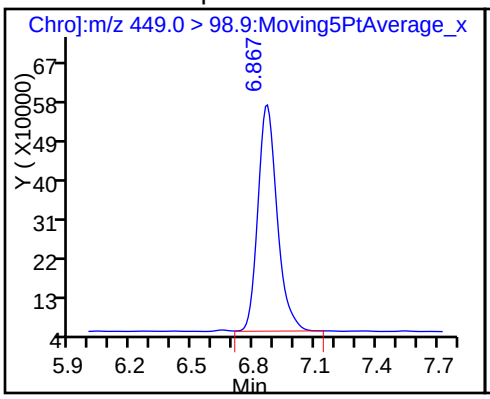
8 Perfluoroheptanoic acid



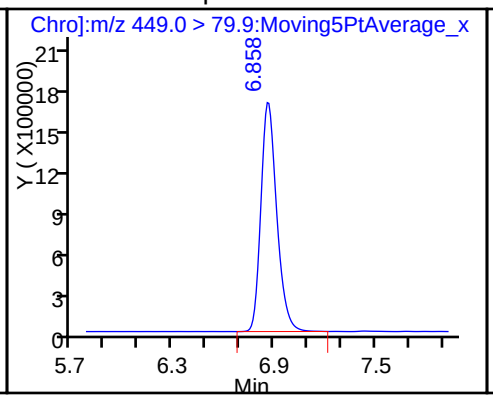
13 Perfluoroheptane Sulfonate



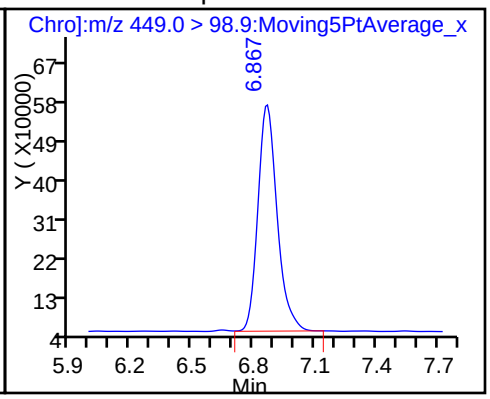
13 Perfluoroheptane Sulfonate



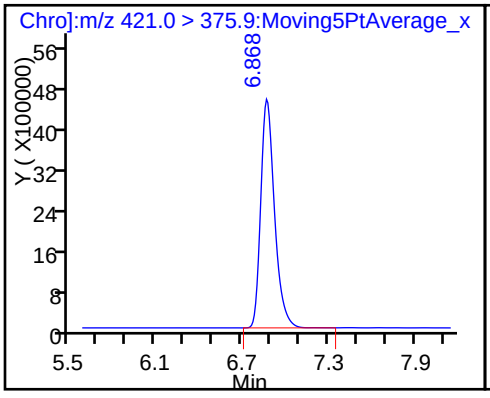
12 Perfluoroheptanesulfonic Acid



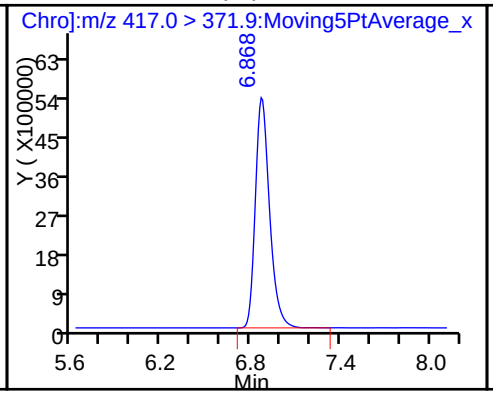
12 Perfluoroheptanesulfonic Acid



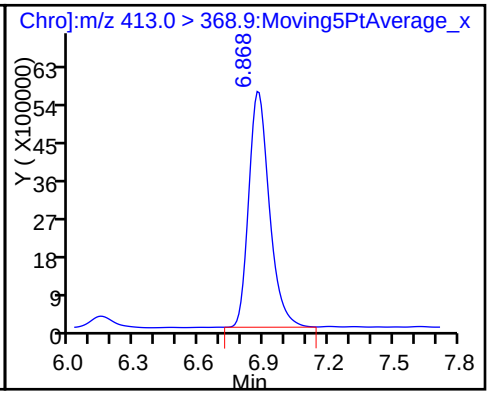
$ 14 13C8 PFOA



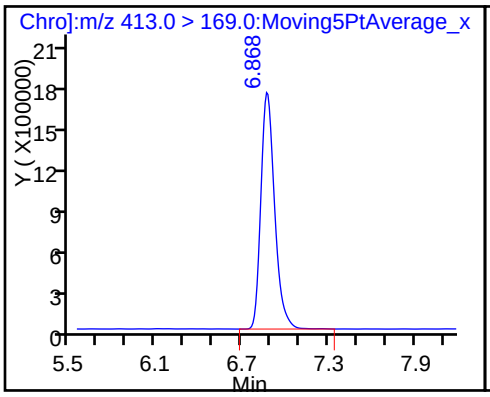
* 15 13C4 PFOA (IS)



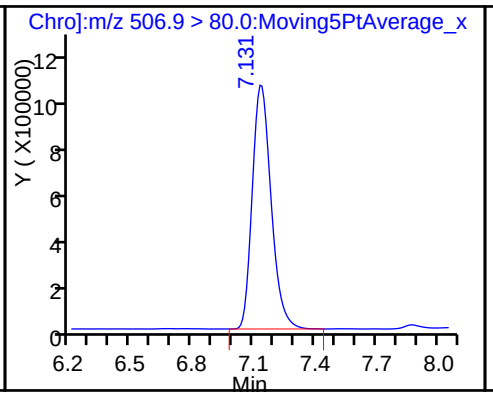
16 Perfluorooctanoic acid



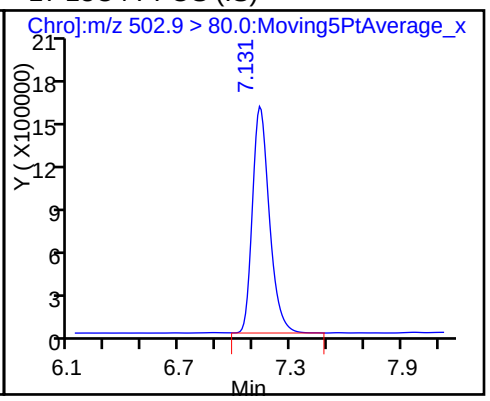
16 Perfluorooctanoic acid



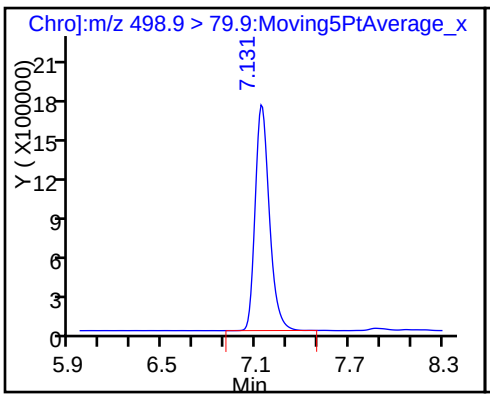
$ 18 13C8 PFOS



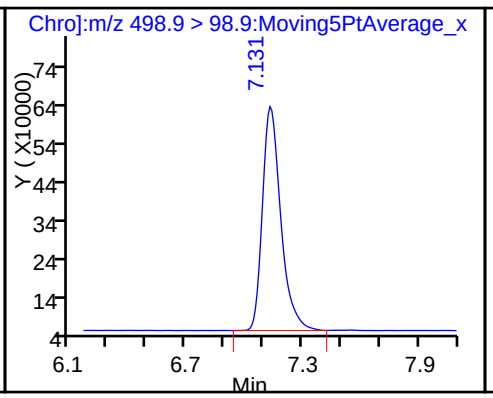
* 17 13C4 PFOS (IS)



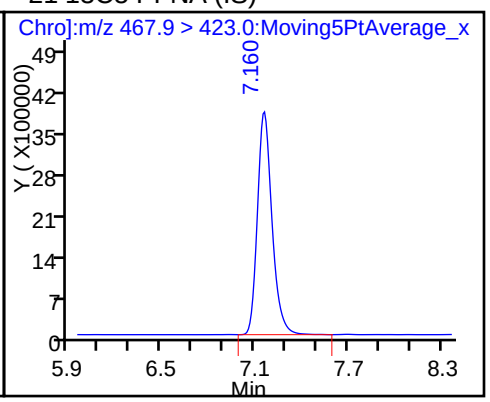
19 Perfluorooctane sulfonic acid



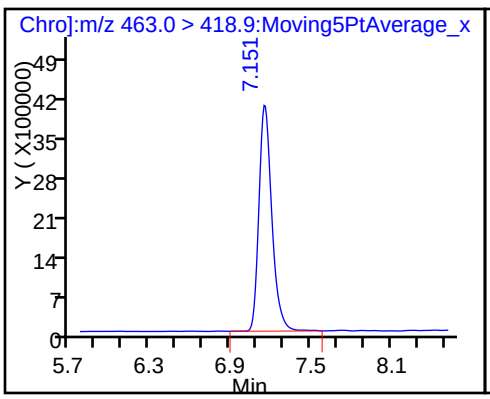
19 Perfluorooctane sulfonic acid



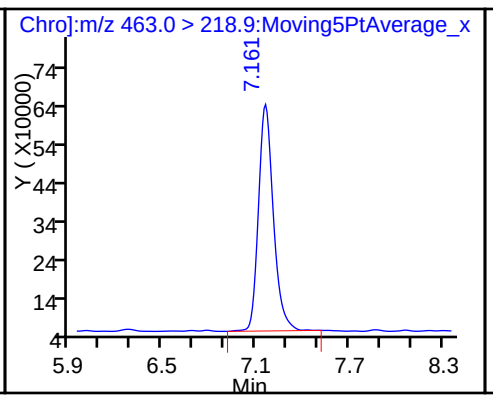
* 21 13C5 PFNA (IS)



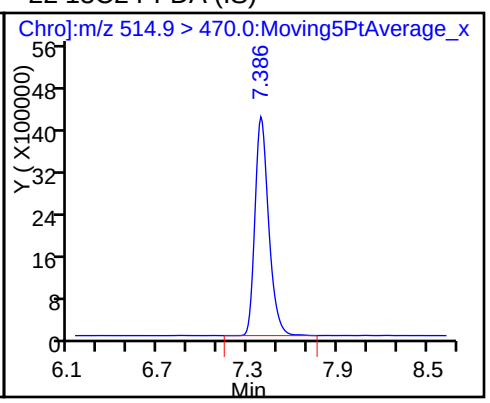
20 Perfluorononanoic acid



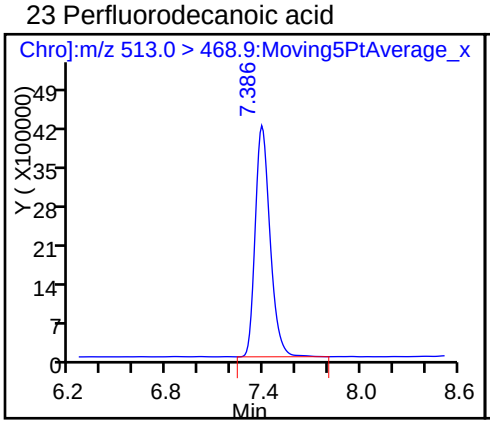
20 Perfluorononanoic acid



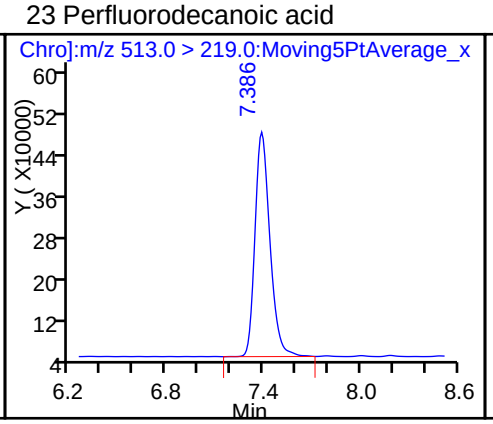
* 22 13C2 PFDA (IS)



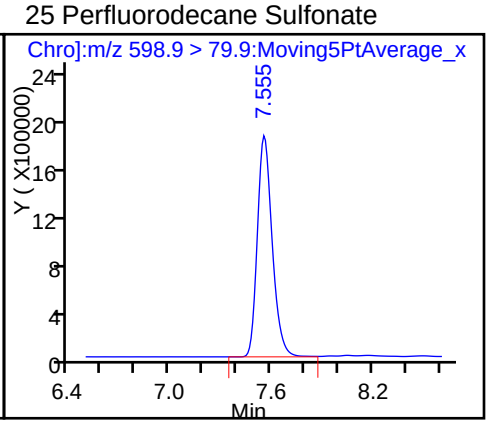
23 Perfluorodecanoic acid



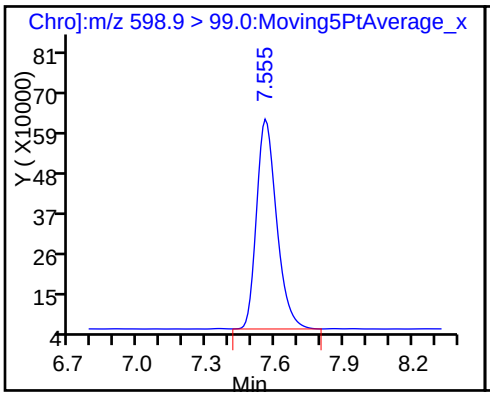
23 Perfluorodecanoic acid



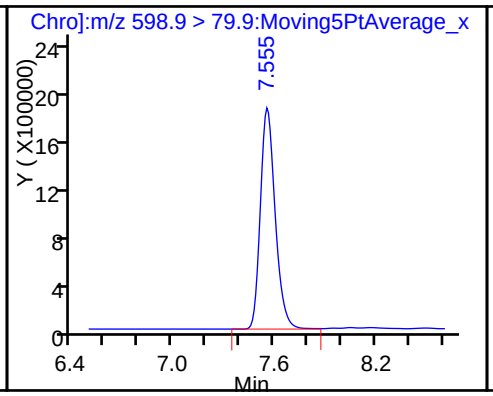
25 Perfluorodecane Sulfonate



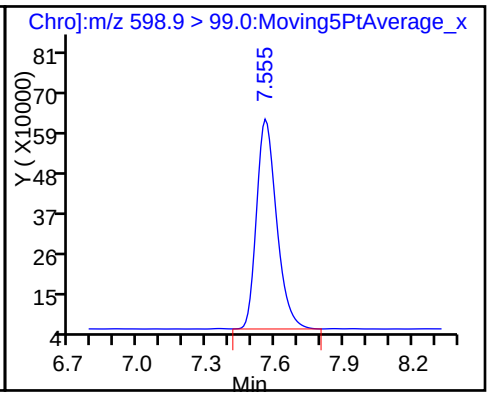
25 Perfluorodecane Sulfonate



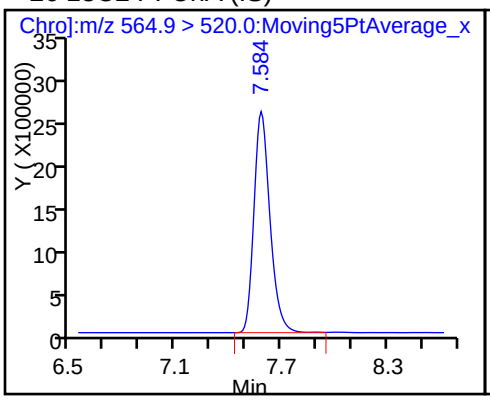
24 Perfluorodecane Sulfonic acid



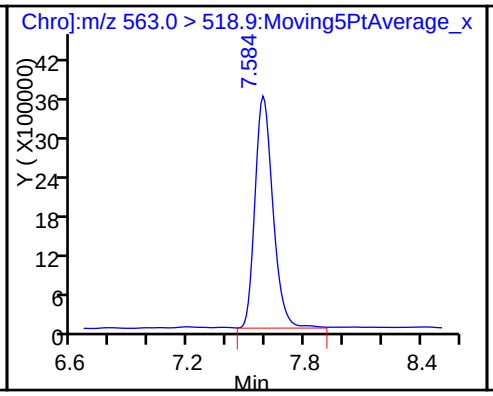
24 Perfluorodecane Sulfonic acid



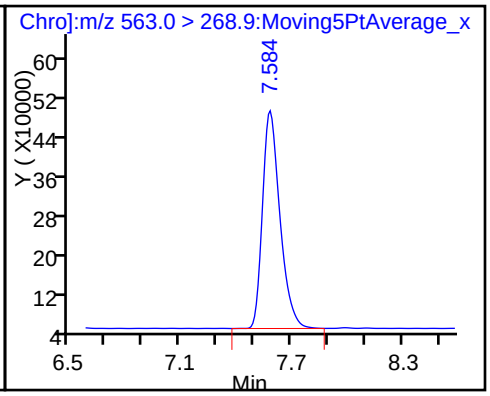
* 26 13C2 PFUnA (IS)



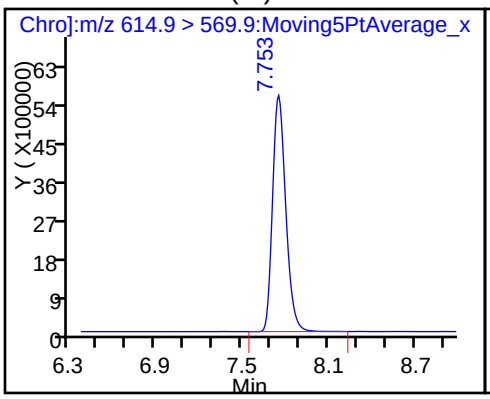
27 Perfluoroundecanoic acid



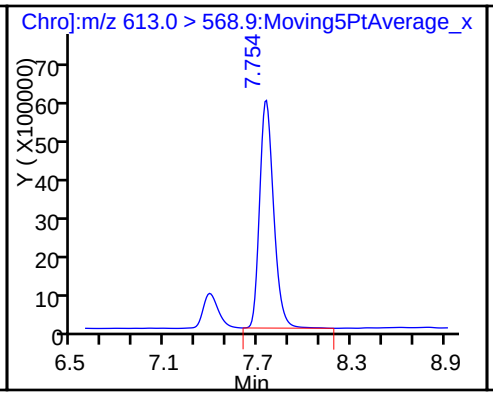
27 Perfluoroundecanoic acid



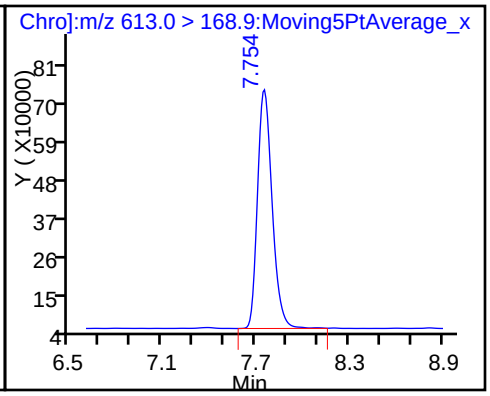
* 28 13C2 PFDoA (IS)



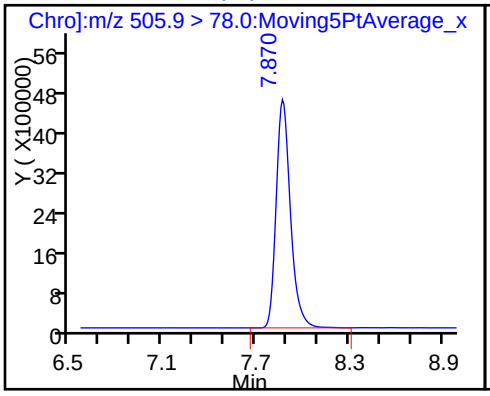
29 Perfluorododecanoic acid



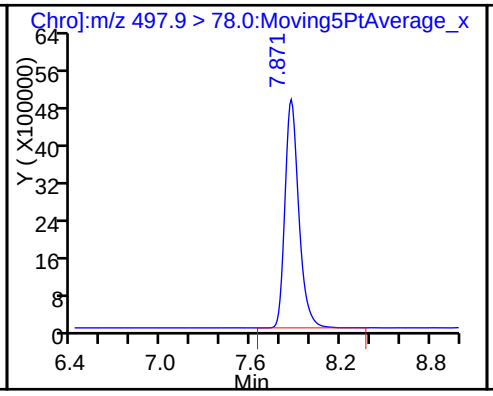
29 Perfluorododecanoic acid



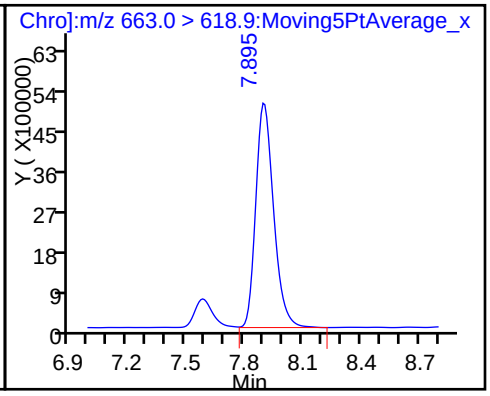
* 31 13C8 FOSA (IS)



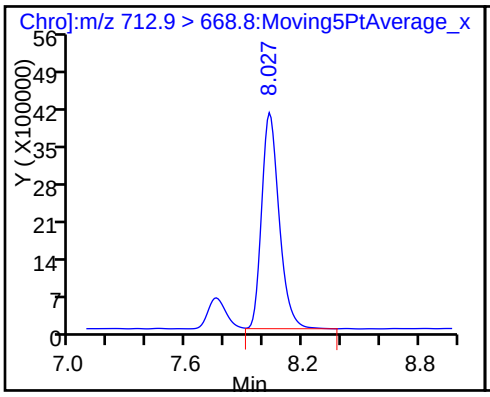
32 Perfluorooctane Sulfonamide



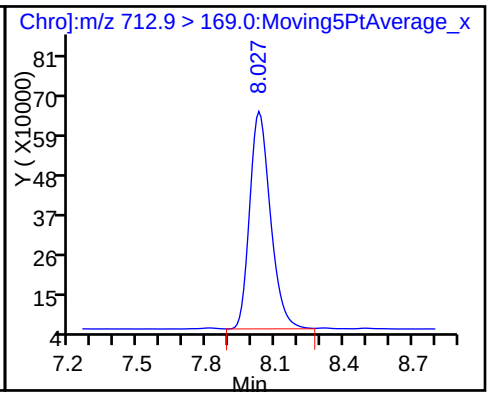
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Lab Sample ID: CCV 280-332793/14 Calibration Date: 07/07/2016 16:06

Instrument ID: LC_LCMS5 Calib Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calib End Date: 06/06/2016 16:28

Lab File ID: PC516G07049.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	Lin2		1.059		4.94	5.00	-1.3	30.0
Perfluoropentanoic acid (PFPA)	Lin2		1.246		5.29	5.00	5.7	30.0
Perfluorobutane Sulfonate (PFBS)	Lin2		4.652		3.95	4.43	-10.9	30.0
Perfluorobutanesulfonic acid	Lin2		4.652		3.95	4.43	-10.9	30.0
Perfluorohexanoic acid (PFHxA)	Lin2		1.000		5.28	5.00	5.5	30.0
Perfluorohexane Sulfonate (PFHxS)	Lin2		3.995		4.84	4.73	2.3	30.0
Perfluorohexanesulfonic acid	Lin2		3.995		4.84	4.73	2.3	30.0
Perfluoroheptanoic acid (PFHpA)	Lin2		0.9831		5.64	5.00	12.7	30.0
Perfluoroheptane Sulfonate	Lin2		1.184		4.66	4.76	-2.2	30.0
Perfluoroheptanesulfonic Acid (PFHpS)	Lin2		1.184		4.66	4.76	-2.2	30.0
Perfluorooctanoic acid (PFOA)	Lin2		1.139		5.44	5.00	8.7	30.0
Perfluorooctanesulfonic acid (PFOS)	Lin2		1.168		4.72	4.78	-1.1	30.0
Perfluorononanoic acid (PFNA)	Lin2		1.095		4.86	5.00	-2.8	30.0
Perfluorodecanoic acid (PFDA)	Lin2		1.071		5.30	5.00	6.0	30.0
Perfluorodecane sulfonate (PFDS)	Lin2		1.160		4.50	4.83	-6.6	30.0
Perfluorodecane Sulfonic acid	Lin2		1.160		4.50	4.83	-6.6	30.0
Perfluoroundecanoic acid (PFUnA)	Lin2		1.536		5.39	5.00	7.9	30.0
Perfluorododecanoic acid (PFDoA)	Lin2		1.052		5.09	5.00	1.8	30.0
Perfluorooctane Sulfonamide (FOSA)	Lin2		1.143		5.26	5.00	5.2	30.0
Perfluorotridecanoic Acid (PFTriA)	Lin2		1.032		5.51	5.00	10.2	30.0
Perfluorotetradecanoic acid (PFTeA)	Lin2		0.7485		6.33	5.00	26.6	30.0
13C8 PFOA	Lin2		0.9489		5.85	5.00	16.9	30.0
13C8 PFOS	Lin2		0.6454		5.03	4.78	5.2	30.0

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07049.d
Lims ID: CCV PFC L5
Client ID:
Sample Type: CCV
Inject. Date: 07-Jul-2016 16:06:07 ALS Bottle#: 0 Worklist Smp#: 14
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: CCV PFC L5, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 08-Jul-2016 09:16:01 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK002

First Level Reviewer: fiedlerh Date: 08-Jul-2016 08:12:07

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.579	4.579	0.0		32319038	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	4.589	4.589	0.0	1.002	17105349	4.94			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.526	5.526	0.0	0.908	12954276	5.29			
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.630	5.630	0.0	0.866	5655586	3.94			
298.9 > 98.9	5.639	5.630	0.009	0.868	1704027		3.32(1.80-3.35)		
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.630	5.630	0.0	0.866	5655586	3.94			
298.9 > 98.9	5.639	5.630	0.009	0.868	1704027		3.32(2.57-2.57)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	6.084	6.084	0.0		20786895	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	6.084	6.084	0.0	1.000	10394020	5.28			
313.0 > 118.6	6.093	6.084	0.009	1.002	295146		35.22(34.05-63.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.499	6.499	0.0		2599148	9.46			
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.490	6.490	0.0	0.999	5186709	4.84			
398.9 > 98.9	6.490	6.490	0.0	0.999	1836903		2.82(1.85-1.85)		
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.490	6.490	0.0	0.999	5186709	4.84			R
398.9 > 98.9	6.490	6.490	0.0	0.999	1836903		2.82(1.30-2.41)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.491	6.491	0.0	0.950	15544942	5.64			
363.0 > 168.9	6.491	6.491	0.0	0.950	3946659		3.94(3.35-6.23)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.820	6.820	0.0	0.961	5562469	4.66			
449.0 > 98.9	6.811	6.820	-0.009	0.960	1733942		3.21(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.820	6.820	0.0	0.961	5562469	4.66			
449.0 > 98.9	6.811	6.820	-0.009	0.960	1733942		3.21(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.830	6.830	0.0	1.000	15004443	5.85			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.830	6.830	0.0		31623912	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.831	6.831	0.0	1.000	18012811	5.44			
413.0 > 169.0	6.831	6.831	0.0	1.000	5894652		3.06(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	7.093	7.093	0.0	1.000	3045143	5.03			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	7.093	7.093	0.0		9436691	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	7.093	7.093	0.0	1.000	5505919	4.72			R
498.9 > 98.9	7.093	7.093	0.0	1.000	2059555		2.67(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	7.123	7.123	0.0		25604400	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	7.123	7.123	0.0	1.000	14020080	4.86			
463.0 > 218.9	7.123	7.123	0.0	1.000	2392391		5.86(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.357	7.357	0.0		25744397	10.0			
23 Perfluorodecanoic acid									R
513.0 > 468.9	7.358	7.358	0.0	1.000	13787408	5.30			R
513.0 > 219.0	7.358	7.358	0.0	1.000	1390413		9.92(10.49-19.48)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.527	7.527	0.0	1.061	5524644	4.50			
598.9 > 99.0	7.527	7.527	0.0	1.061	1758038		3.14(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.527	7.527	0.0	1.061	5524644	4.50			
598.9 > 99.0	7.527	7.527	0.0	1.061	1758038		3.14(2.84-2.84)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.556	7.556	0.0		15840989	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.556	7.556	0.0	1.000	12166141	5.39			R
563.0 > 268.9	7.565	7.556	0.009	1.001	1402164		8.68(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.734	7.734	0.0		33927264	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.735	7.735	0.0	1.000	17846984	5.09			
613.0 > 168.9	7.735	7.735	0.0	1.000	2215297		8.06(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.775	7.775	0.0		25446644	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.776	7.776	0.0	1.000	14538452	5.26			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.886	7.886	0.0	1.020	17500876	5.51			
33 Perfluorotetradecanoic acid									M
712.9 > 668.8	8.018	8.018	0.0	1.037	12697593	6.33			
712.9 > 169.0	8.018	8.018	0.0	1.037	1939173		6.55(8.28-8.28)		M

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Review Flags

M - Manually Integrated

Reagents:

PFC-IS_00021	Amount Added:	20.00	Units: uL
PFC_Surr_00021	Amount Added:	10.00	Units: uL
PFC-LCS_00078	Amount Added:	10.00	Units: uL

Report Date: 08-Jul-2016 09:16:02 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07049.d

Injection Date: 07-Jul-2016 16:06:07 Instrument ID: LC_LCMS5

Lims ID: CCV PFC L5

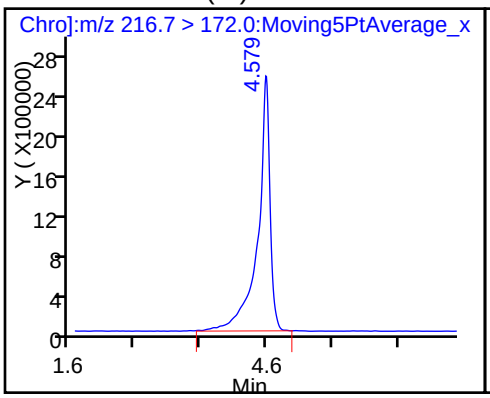
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 14

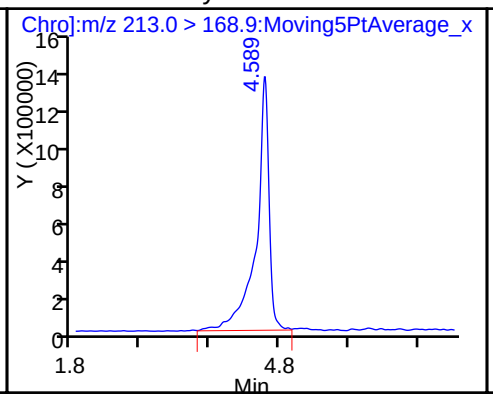
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

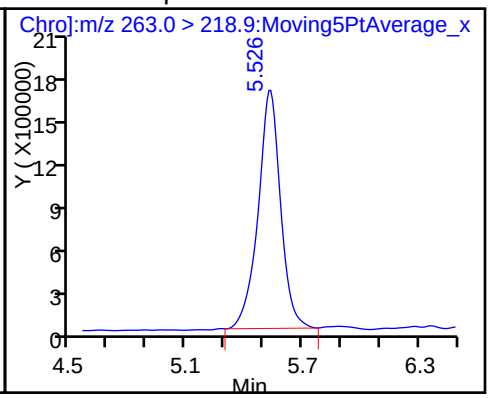
* 1 13C4 PFBA (IS)



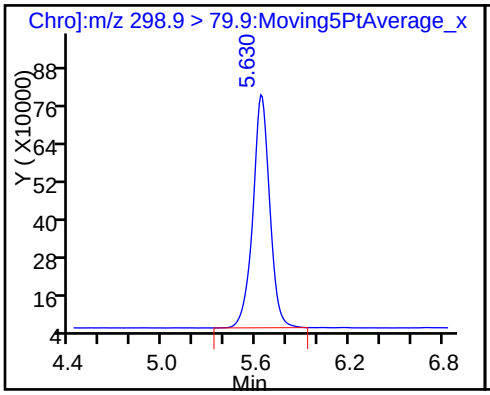
2 Perfluorobutyric acid



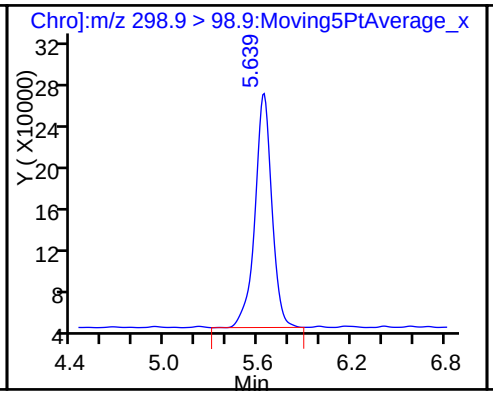
3 Perfluoropentanoic acid



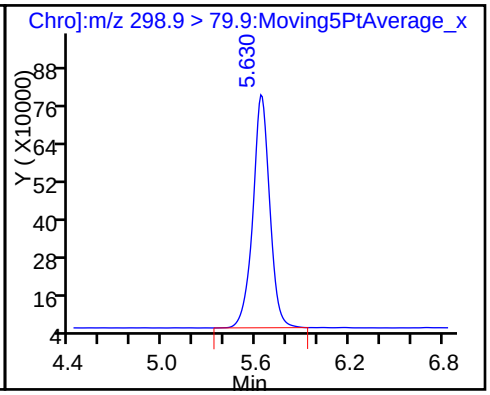
4 Perfluorobutane Sulfonate



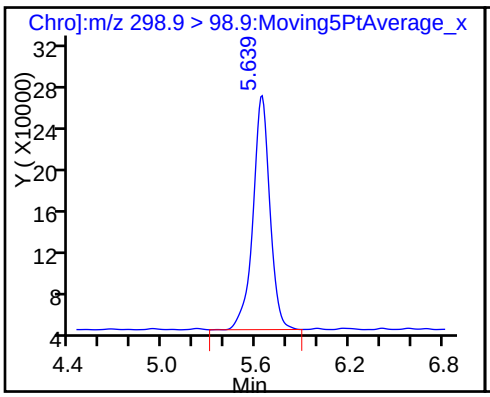
4 Perfluorobutane Sulfonate



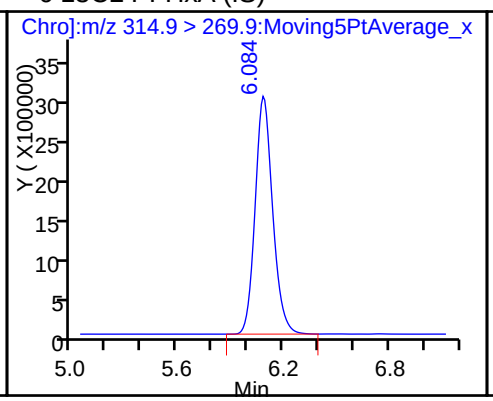
5 Perfluorobutanesulfonic acid



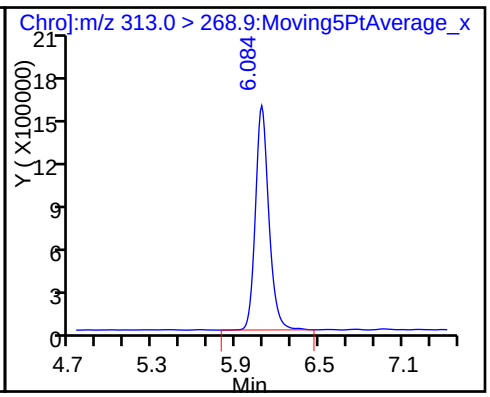
5 Perfluorobutanesulfonic acid



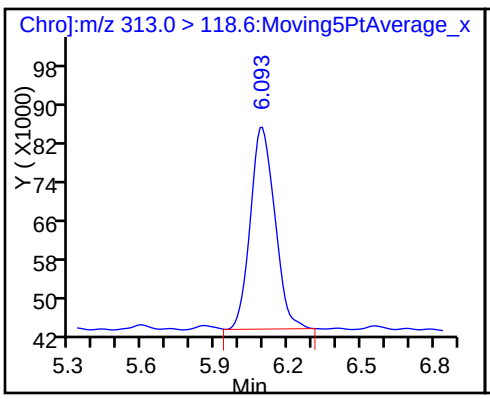
* 6 13C2 PFHxA (IS)



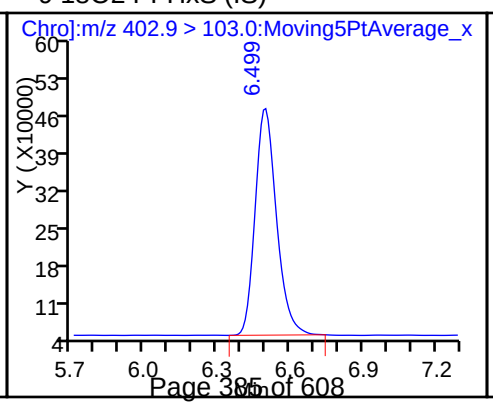
7 Perfluorohexanoic acid



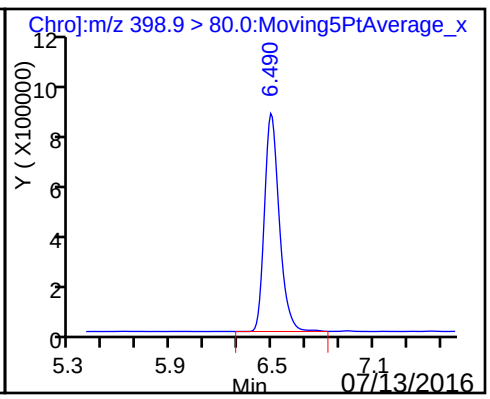
7 Perfluorohexanoic acid



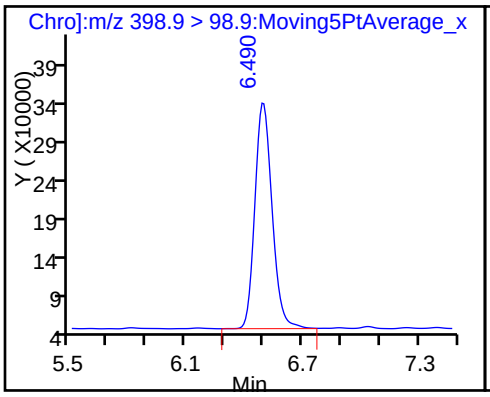
* 9 18O2 PFHxS (IS)



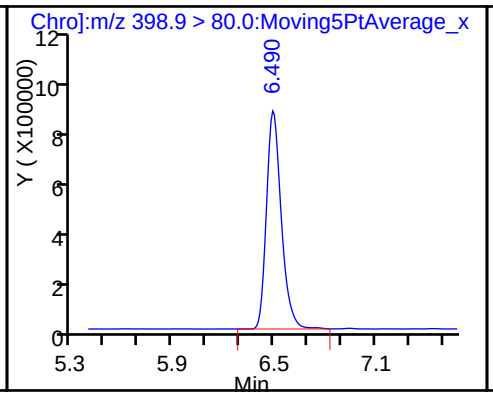
11 Perfluorohexanesulfonic acid



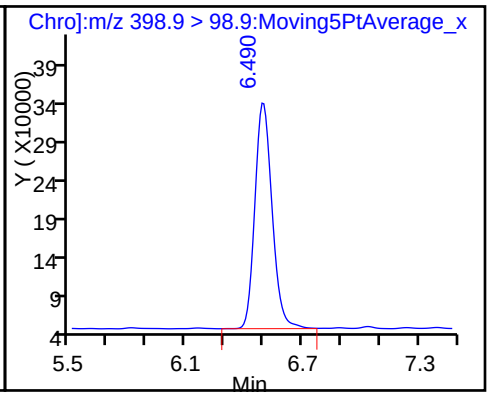
11 Perfluorohexanesulfonic acid



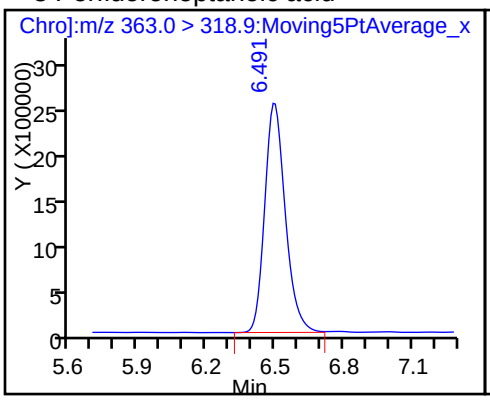
10 Perfluorohexane Sulfonate



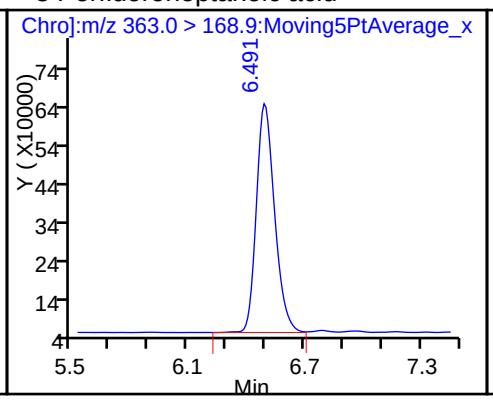
10 Perfluorohexane Sulfonate



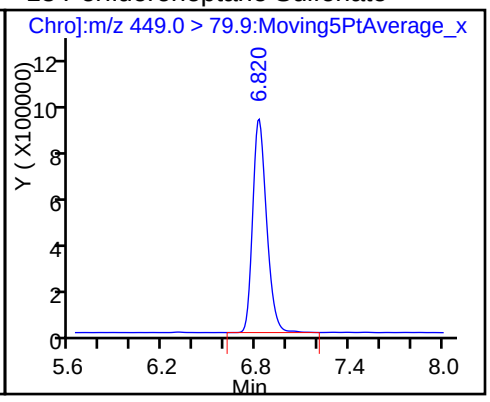
8 Perfluoroheptanoic acid



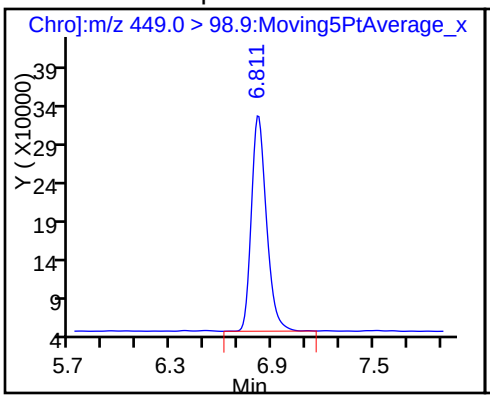
8 Perfluoroheptanoic acid



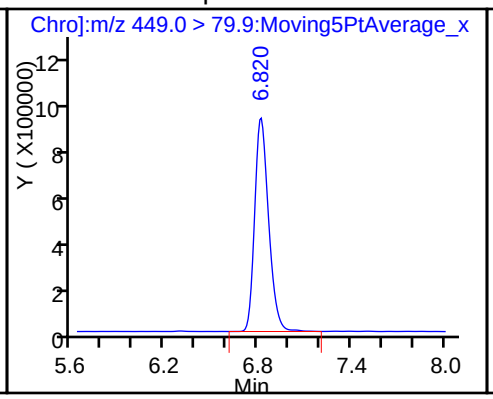
13 Perfluoroheptane Sulfonate



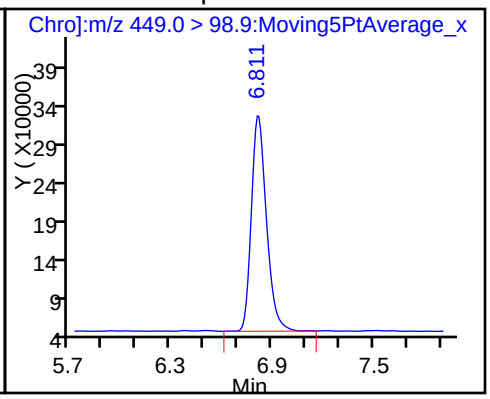
13 Perfluoroheptane Sulfonate



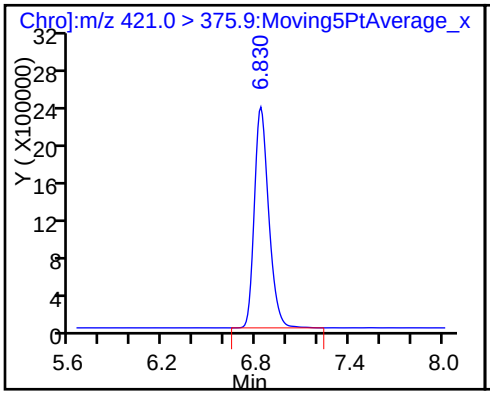
12 Perfluoroheptanesulfonic Acid



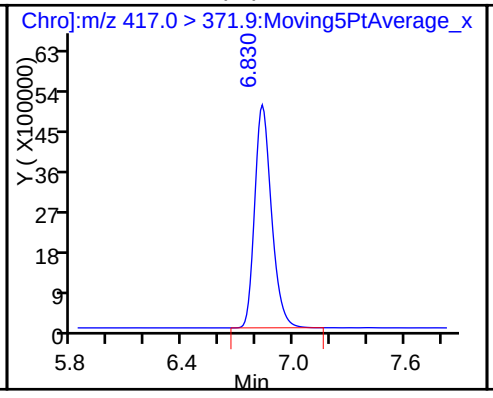
12 Perfluoroheptanesulfonic Acid



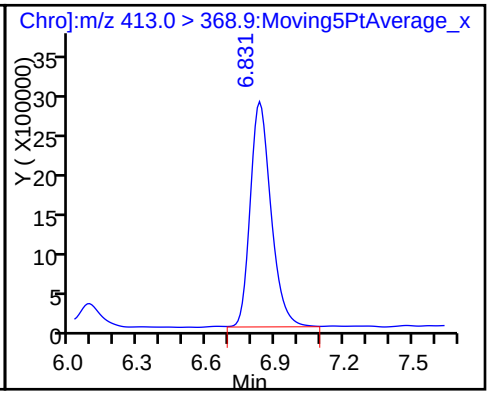
$ 14 13C8 PFOA



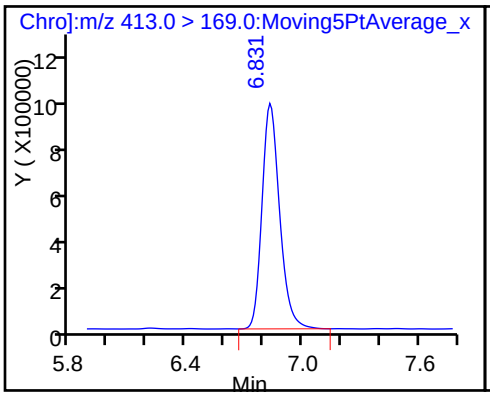
* 15 13C4 PFOA (IS)



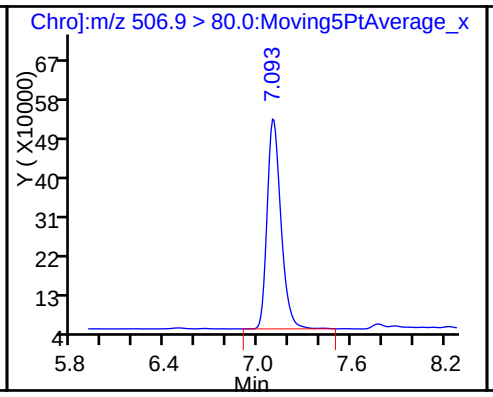
16 Perfluorooctanoic acid



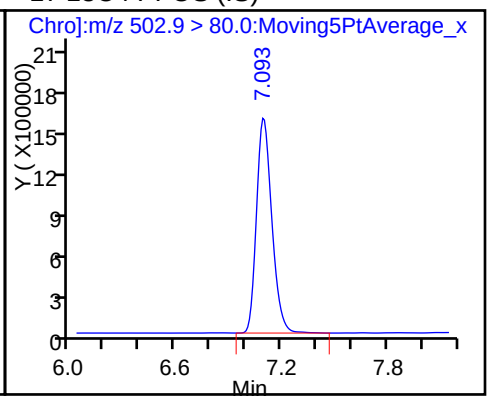
16 Perfluorooctanoic acid



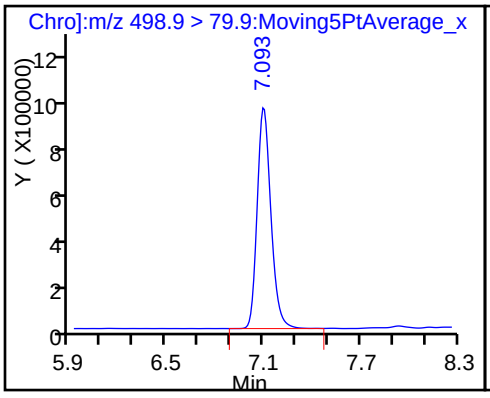
$ 18 13C8 PFOS



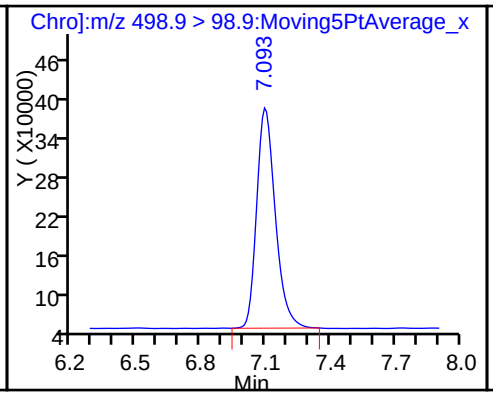
* 17 13C4 PFOS (IS)



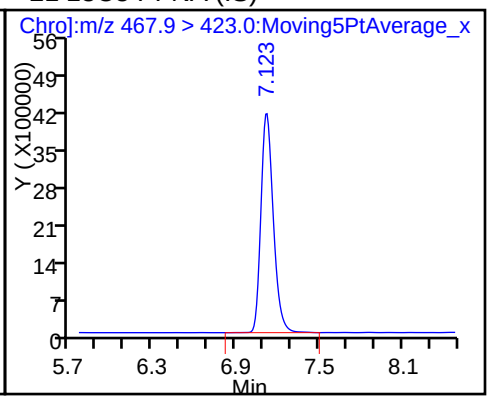
19 Perfluorooctane sulfonic acid



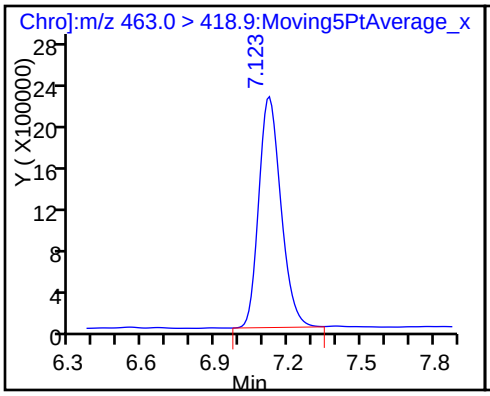
19 Perfluorooctane sulfonic acid



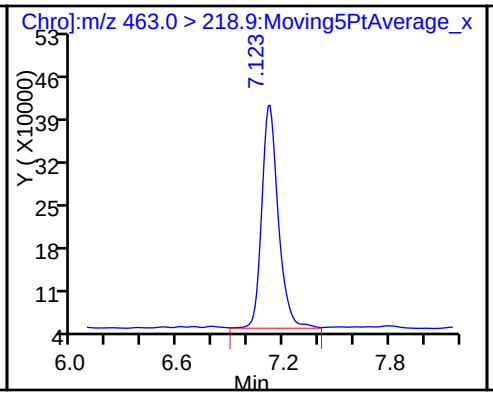
* 21 13C5 PFNA (IS)



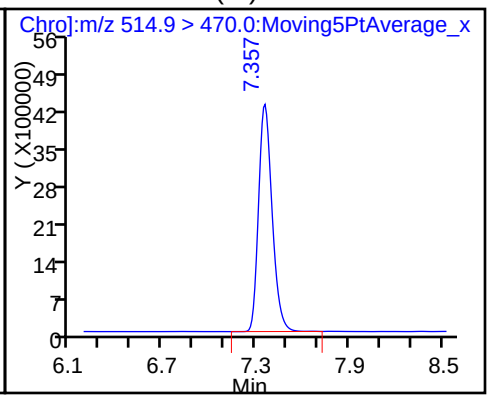
20 Perfluorononanoic acid



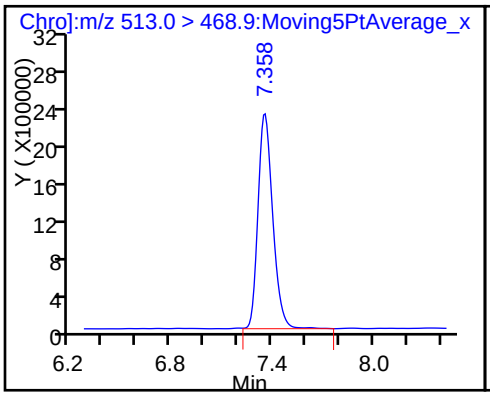
20 Perfluorononanoic acid



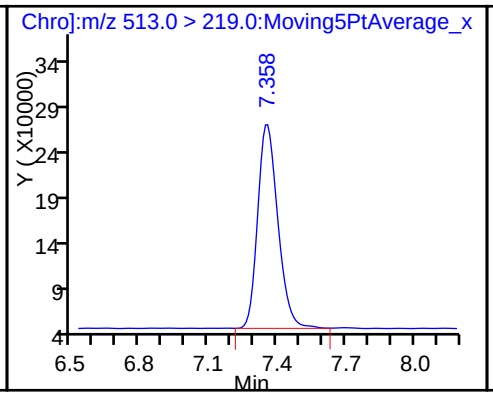
* 22 13C2 PFDA (IS)



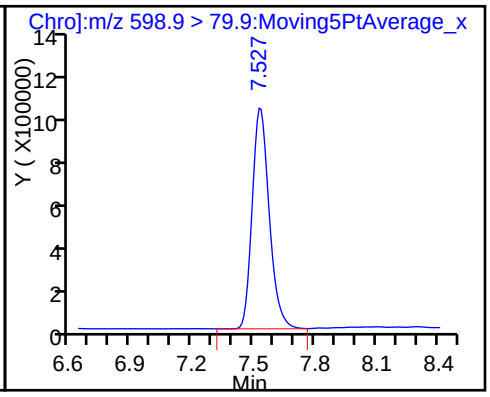
23 Perfluorodecanoic acid



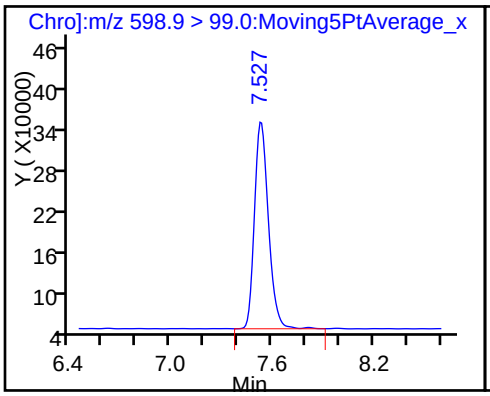
23 Perfluorodecanoic acid



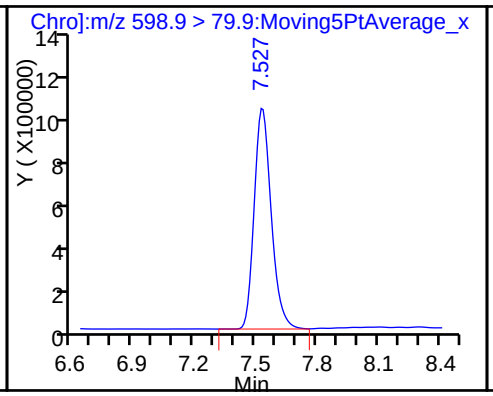
25 Perfluorodecane Sulfonate



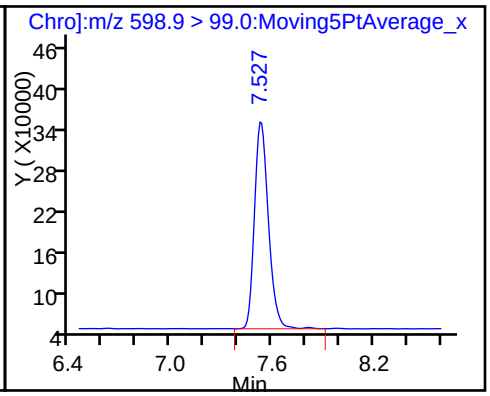
25 Perfluorodecane Sulfonate



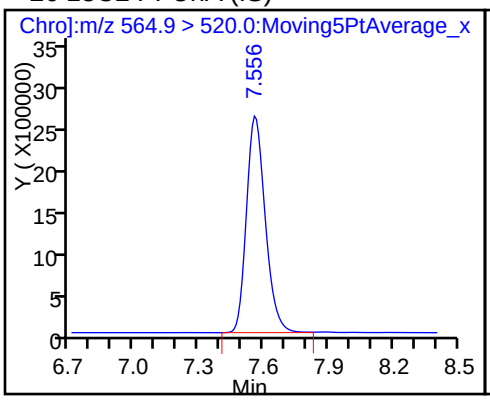
24 Perfluorodecane Sulfonic acid



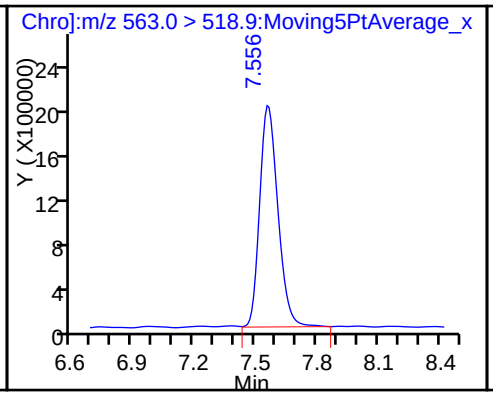
24 Perfluorodecane Sulfonic acid



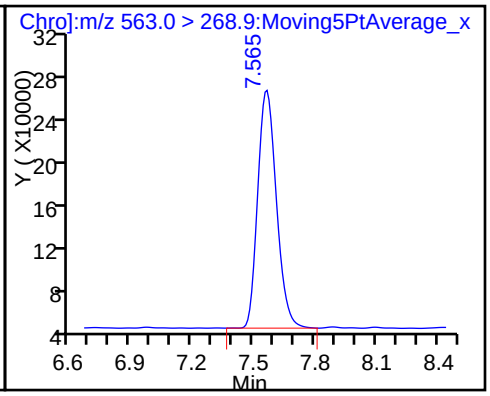
* 26 13C2 PFUnA (IS)



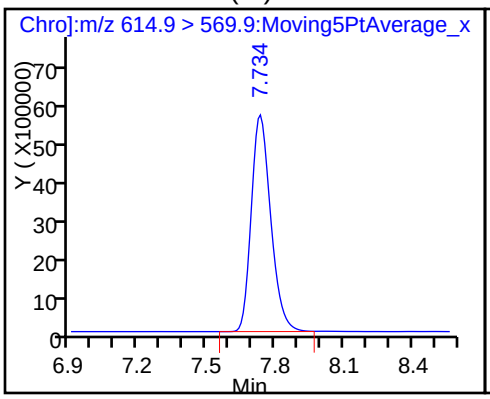
27 Perfluoroundecanoic acid



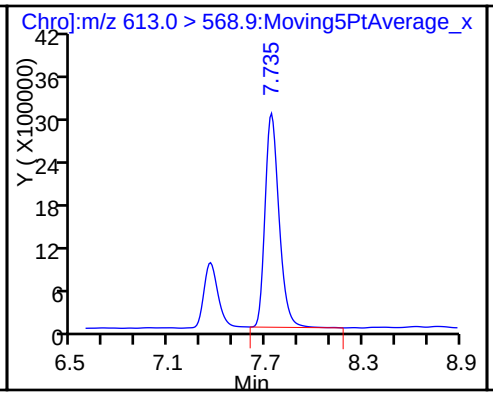
27 Perfluoroundecanoic acid



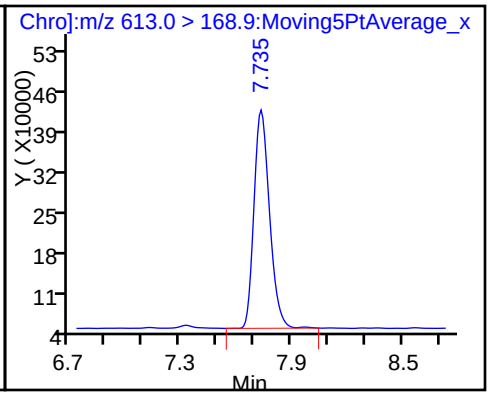
* 28 13C2 PFDoA (IS)



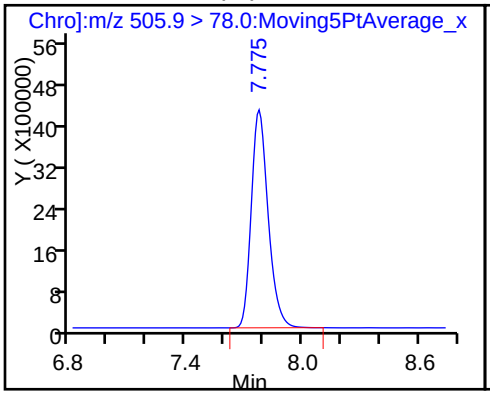
29 Perfluorododecanoic acid



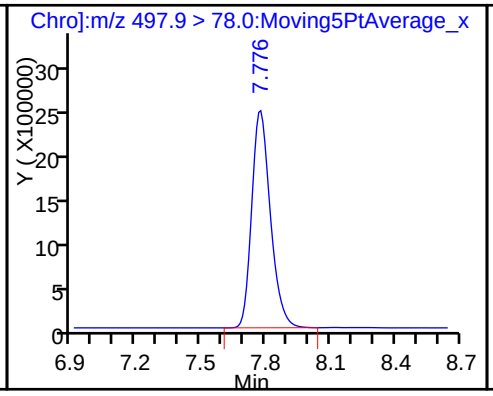
29 Perfluorododecanoic acid



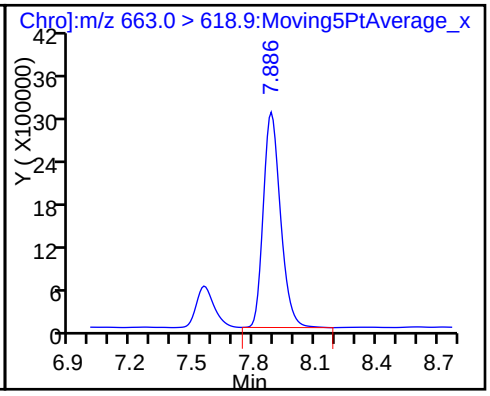
* 31 13C8 FOSA (IS)



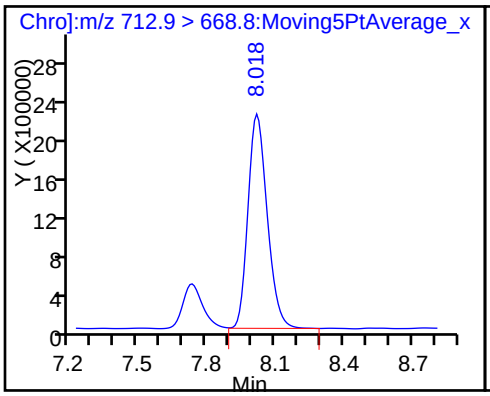
32 Perfluorooctane Sulfonamide



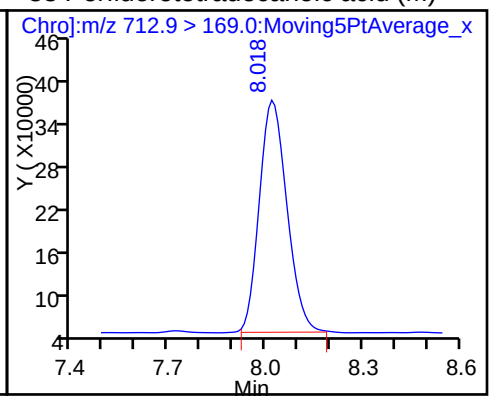
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid (M)



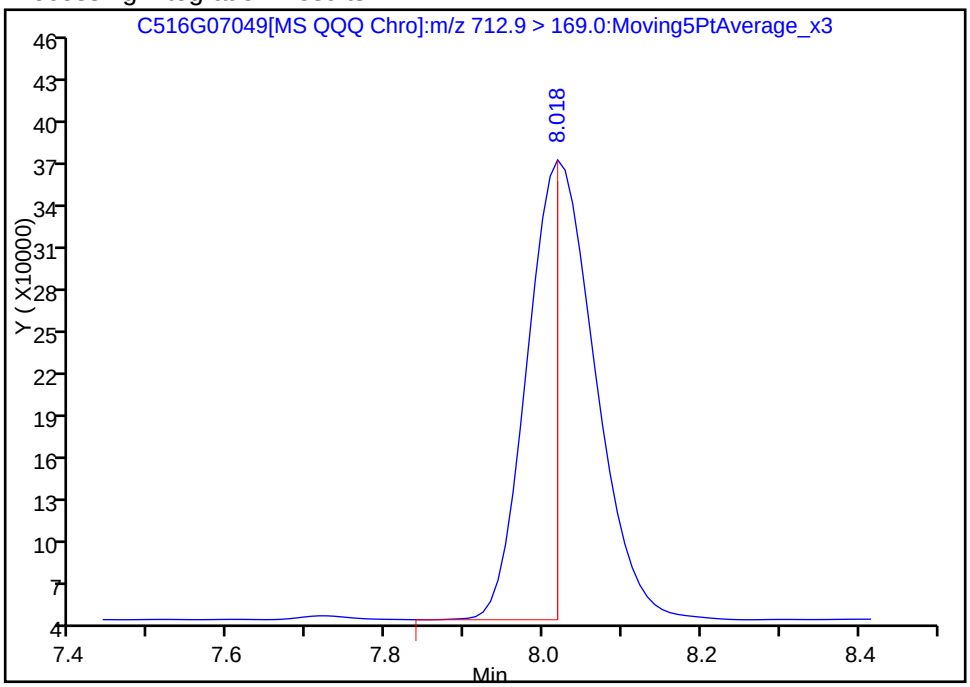
TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07049.d
Injection Date: 07-Jul-2016 16:06:07 Instrument ID: LC_LCMS5
Lims ID: CCV PFC L5
Client ID:
Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 14
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Method: 8321_PFC Limit Group: LC - PFC
Column: Detector MS QQQ

33 Perfluorotetradecanoic acid, CAS: 376-06-7

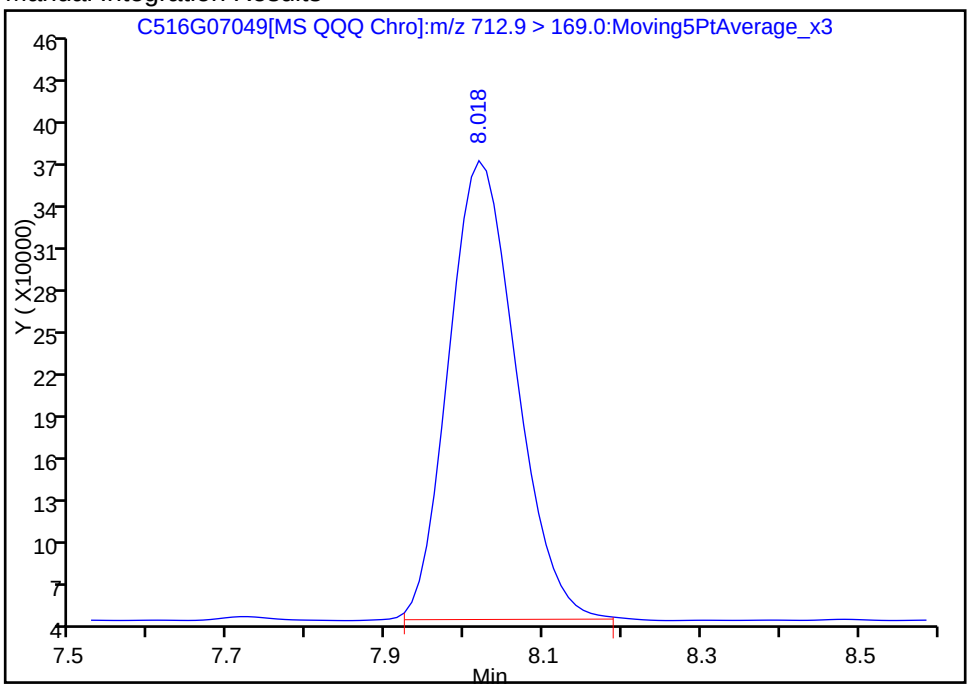
Processing Integration Results

RT: 8.02
Area: 865867
Amount: 6.331112
Amount Units: ug/L



Manual Integration Results

RT: 8.02
Area: 1939173
Amount: 6.331112
Amount Units: ug/L



Reviewer: fiedlerh, 08-Jul-2016 08:12:07
Audit Action: Manually Integrated
Audit Reason: Baseline

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Lab Sample ID: CCV 280-332793/25 Calibration Date: 07/07/2016 18:21

Instrument ID: LC_LCMS5 Calib Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calib End Date: 06/06/2016 16:28

Lab File ID: PC516G07060.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	Lin2		1.094		10.2	10.0	2.0	30.0
Perfluoropentanoic acid (PFPA)	Lin2		1.266		10.8	10.0	7.6	30.0
Perfluorobutane Sulfonate (PFBS)	Lin2		4.510		7.64	8.85	-13.7	30.0
Perfluorobutanesulfonic acid	Lin2		4.510		7.64	8.85	-13.7	30.0
Perfluorohexanoic acid (PFHxA)	Lin2		0.9519		10.1	10.0	0.7	30.0
Perfluorohexane Sulfonate (PFHxS)	Lin2		3.932		9.60	9.45	1.6	30.0
Perfluorohexanesulfonic acid	Lin2		3.932		9.60	9.45	1.6	30.0
Perfluoroheptanoic acid (PFHpA)	Lin2		0.9311		10.7	10.0	7.1	30.0
Perfluoroheptane Sulfonate	Lin2		1.185		9.31	9.52	-2.2	30.0
Perfluoroheptanesulfonic Acid (PFHpS)	Lin2		1.185		9.31	9.52	-2.2	30.0
Perfluorooctanoic acid (PFOA)	Lin2		1.110		10.7	10.0	6.6	30.0
Perfluorooctanesulfonic acid (PFOS)	Lin2		1.204		9.82	9.55	2.8	30.0
Perfluorononanoic acid (PFNA)	Lin2		1.113		9.92	10.0	-0.8	30.0
Perfluorodecanoic acid (PFDA)	Lin2		0.9663		9.59	10.0	-4.1	30.0
Perfluorodecane sulfonate (PFDS)	Lin2		1.198		9.34	9.65	-3.2	30.0
Perfluorodecane Sulfonic acid	Lin2		1.198		9.34	9.65	-3.2	30.0
Perfluoroundecanoic acid (PFUnA)	Lin2		1.395		9.85	10.0	-1.6	30.0
Perfluorododecanoic acid (PFDoA)	Lin2		0.9932		9.67	10.0	-3.4	30.0
Perfluorooctane Sulfonamide (FOSA)	Lin2		1.069		9.84	10.0	-1.6	30.0
Perfluorotridecanoic Acid (PFTriA)	Lin2		0.9936		10.7	10.0	6.9	30.0
Perfluorotetradecanoic acid (PFTeA)	Lin2		0.7238		12.3	10.0	22.5	30.0
13C8 PFOA	Lin2		0.8824		10.9	10.0	9.2	30.0
13C8 PFOS	Lin2		0.6852		10.7	9.56	12.1	30.0

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07060.d
Lims ID: CCV PFC L6
Client ID:
Sample Type: CCV
Inject. Date: 07-Jul-2016 18:21:36 ALS Bottle#: 0 Worklist Smp#: 25
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: CCV PFC L6, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 08-Jul-2016 09:16:52 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK002

First Level Reviewer: fiedlerh Date: 08-Jul-2016 08:20:08

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.522	4.522	0.0		31742951	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	4.522	4.522	0.0	1.000	34729563	10.2			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.488	5.488	0.0	0.911	25998238	10.8			
4 Perfluorobutane Sulfonate									R
298.9 > 79.9	5.592	5.592	0.0	0.869	10964784	7.64			R
298.9 > 98.9	5.592	5.592	0.0	0.869	3250907		3.37(1.80-3.35)		
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.592	5.592	0.0	0.869	10964784	7.64			
298.9 > 98.9	5.592	5.592	0.0	0.869	3250907		3.37(2.57-2.57)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	6.027	6.027	0.0		20538521	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	6.027	6.027	0.0	1.000	19549550	10.1			
313.0 > 118.6	6.027	6.027	0.0	1.000	530878		36.82(34.05-63.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.433	6.433	0.0		2598904	9.46			
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.433	6.433	0.0	1.000	10208888	9.60			
398.9 > 98.9	6.433	6.433	0.0	1.000	3634203		2.81(1.85-1.85)		
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.433	6.433	0.0	1.000	10208888	9.60			R
398.9 > 98.9	6.433	6.433	0.0	1.000	3634203		2.81(1.30-2.41)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.434	6.434	0.0	0.950	29224884	10.7			
363.0 > 168.9	6.434	6.434	0.0	0.950	7588472		3.85(3.35-6.23)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.763	6.763	0.0	0.961	10889685	9.31			
449.0 > 98.9	6.754	6.763	-0.009	0.960	3217792		3.38(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.763	6.763	0.0	0.961	10889685	9.31			
449.0 > 98.9	6.754	6.763	-0.009	0.960	3217792		3.38(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.773	6.773	0.0	1.000	27695528	10.9			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.773	6.773	0.0		31388456	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.774	6.774	0.0	1.000	34847661	10.7			
413.0 > 169.0	6.774	6.774	0.0	1.000	10813856		3.22(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	7.036	7.036	0.0	1.000	6321146	10.7			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	7.036	7.036	0.0		9225234	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	7.037	7.037	0.0	1.000	11096369	9.81			R
498.9 > 98.9	7.037	7.037	0.0	1.000	3818191		2.91(1.31-2.43)		
20 Perfluorononanoic acid									
463.0 > 418.9	7.056	7.056	0.0	1.000	26763833	9.92			
463.0 > 218.9	7.056	7.056	0.0	1.000	3676879		7.28(5.59-10.38)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	7.056	7.056	0.0		24052202	10.0			
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.301	7.301	0.0		26668377	10.0			
23 Perfluorodecanoic acid									R
513.0 > 468.9	7.301	7.301	0.0	1.000	25768559	9.59			R
513.0 > 219.0	7.301	7.301	0.0	1.000	2464900		10.45(10.49-19.48)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.479	7.479	0.0	1.063	11153265	9.34			
598.9 > 99.0	7.479	7.479	0.0	1.063	3195068		3.49(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.479	7.479	0.0	1.063	11153265	9.34			
598.9 > 99.0	7.479	7.479	0.0	1.063	3195068		3.49(2.84-2.84)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.508	7.508	0.0		15994187	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.508	7.508	0.0	1.000	22318812	9.84			R
563.0 > 268.9	7.508	7.508	0.0	1.000	2901737		7.69(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.687	7.687	0.0		34154228	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.687	7.687	0.0	1.000	33922161	9.66			
613.0 > 168.9	7.687	7.687	0.0	1.000	4469742		7.59(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.728	7.728	0.0		25844475	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.729	7.729	0.0	1.000	27621128	9.84			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.848	7.848	0.0	1.021	33934807	10.7			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.980	7.980	0.0	1.038	24721719	12.3			
712.9 > 169.0	7.980	7.980	0.0	1.038	3611035		6.85(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Reagents:

PFC-LCS_00078	Amount Added: 20.00	Units: uL
PFC_Surr_00021	Amount Added: 20.00	Units: uL
PFC-IS_00021	Amount Added: 20.00	Units: uL

Report Date: 08-Jul-2016 09:16:53 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07060.d

Injection Date: 07-Jul-2016 18:21:36 Instrument ID: LC_LCMS5

Lims ID: CCV PFC L6

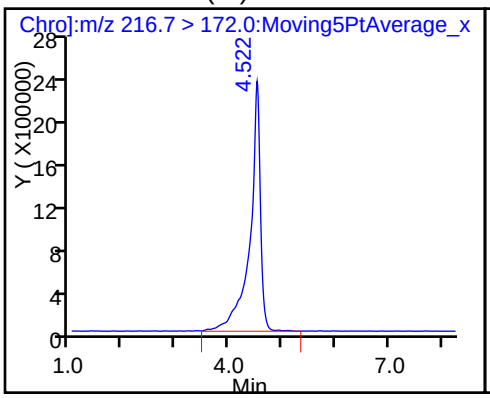
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 25

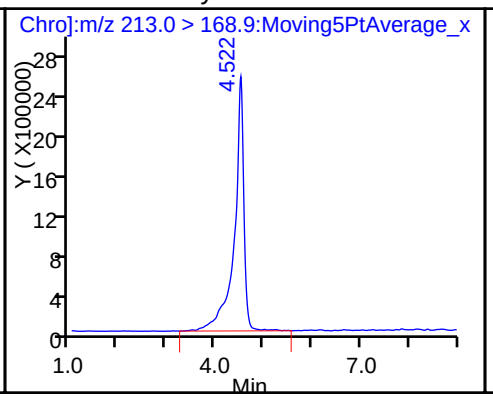
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

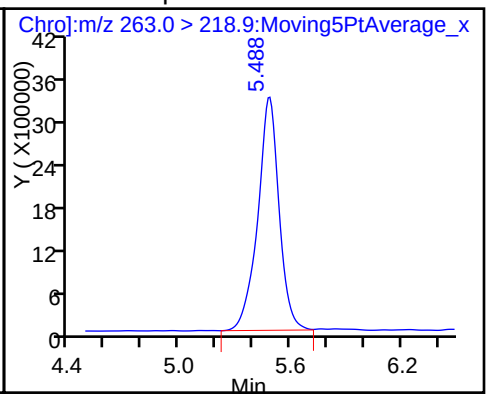
* 1 13C4 PFBA (IS)



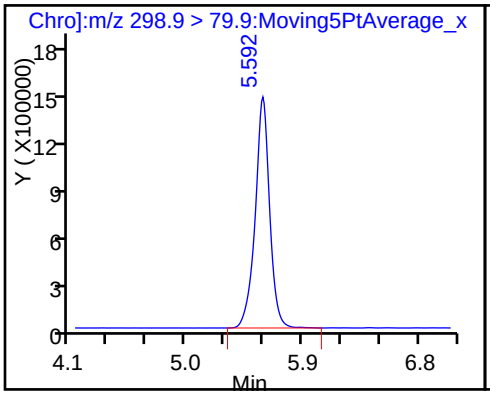
2 Perfluorobutyric acid



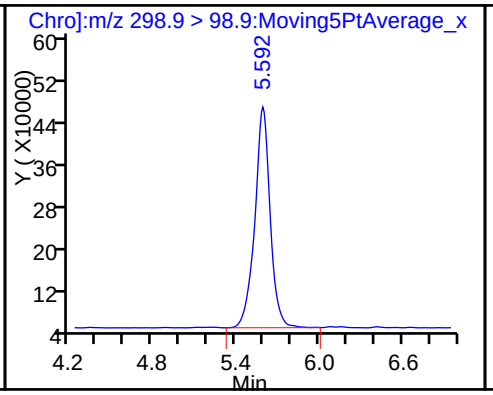
3 Perfluoropentanoic acid



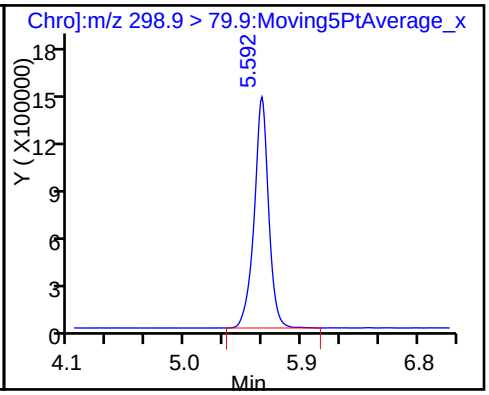
4 Perfluorobutane Sulfonate



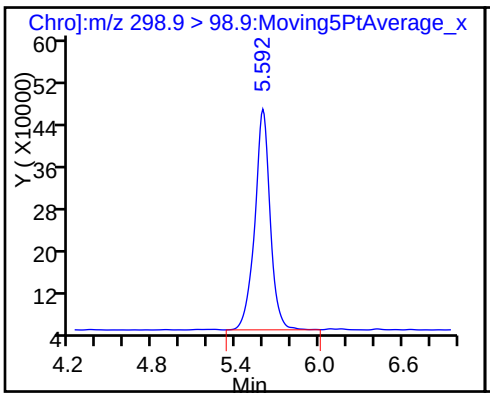
4 Perfluorobutane Sulfonate



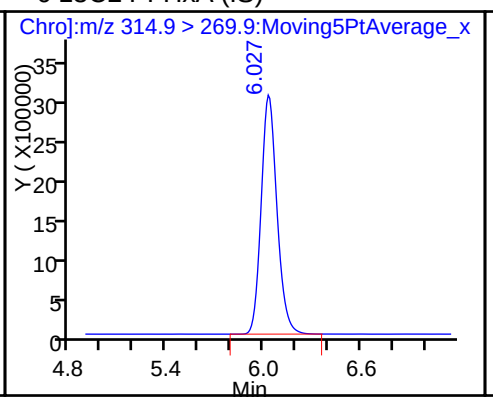
5 Perfluorobutanesulfonic acid



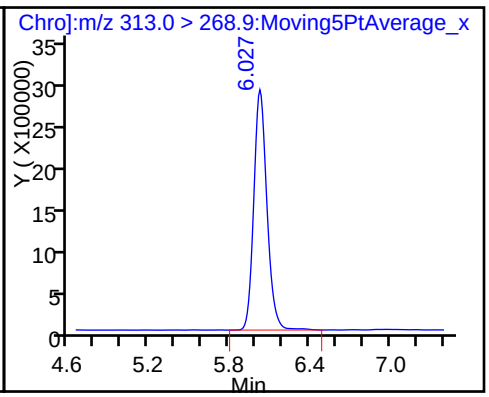
5 Perfluorobutanesulfonic acid



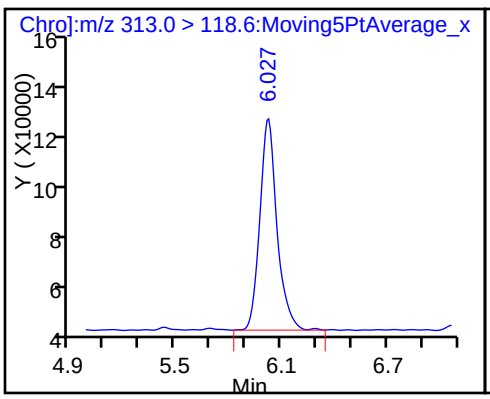
* 6 13C2 PFHxA (IS)



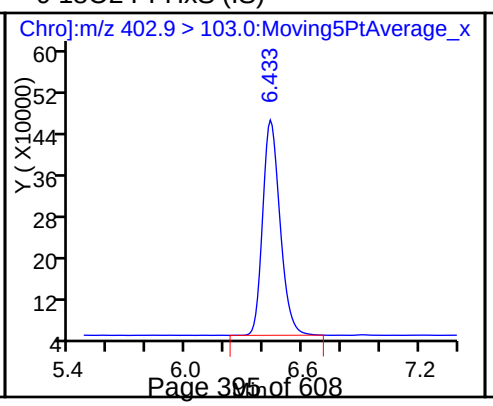
7 Perfluorohexanoic acid



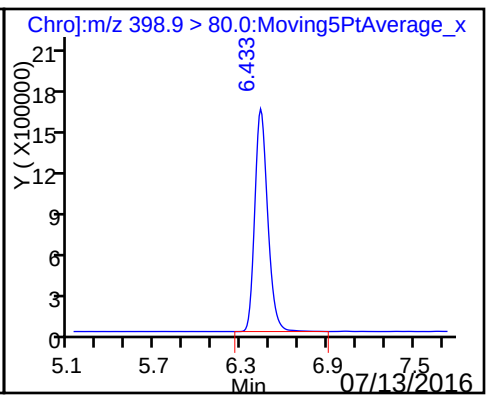
7 Perfluorohexanoic acid



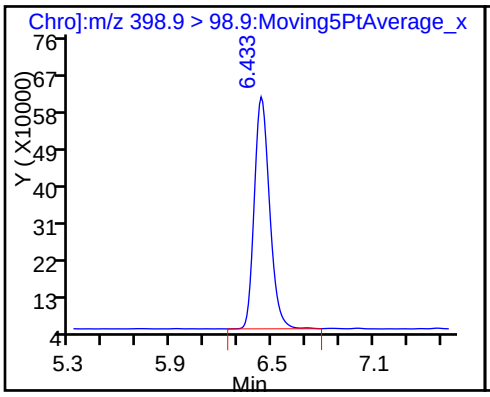
* 9 18O2 PFHxS (IS)



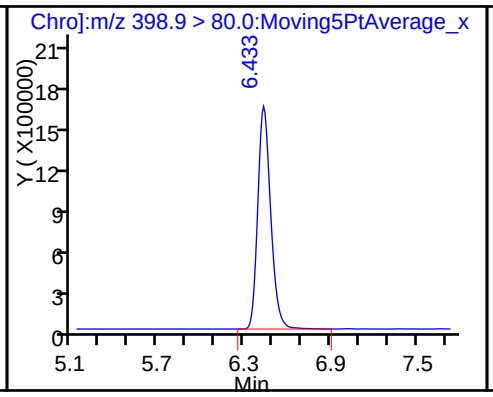
11 Perfluorohexanesulfonic acid



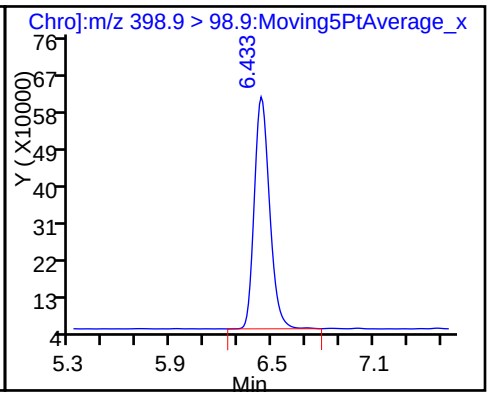
11 Perfluorohexanesulfonic acid



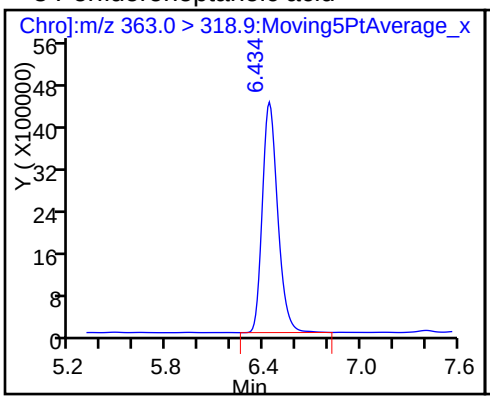
10 Perfluorohexane Sulfonate



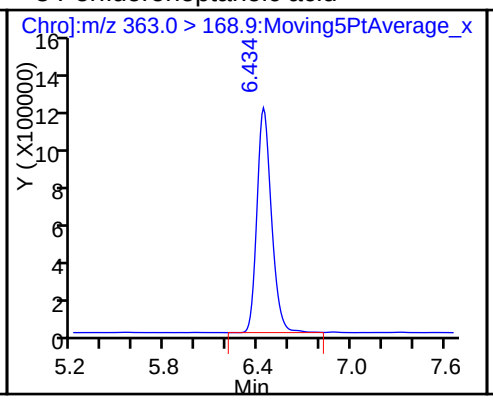
10 Perfluorohexane Sulfonate



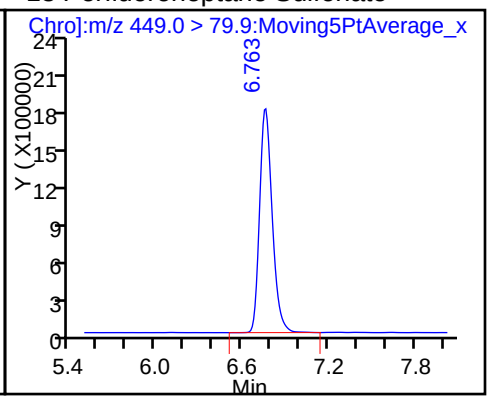
8 Perfluoroheptanoic acid



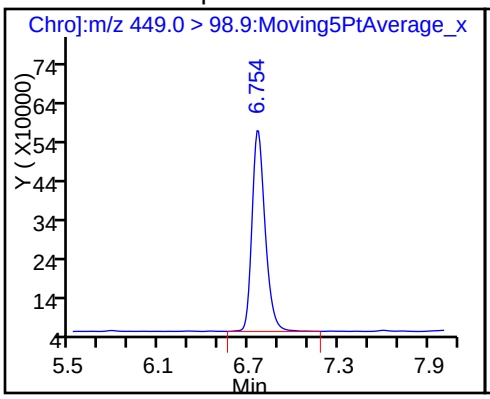
8 Perfluoroheptanoic acid



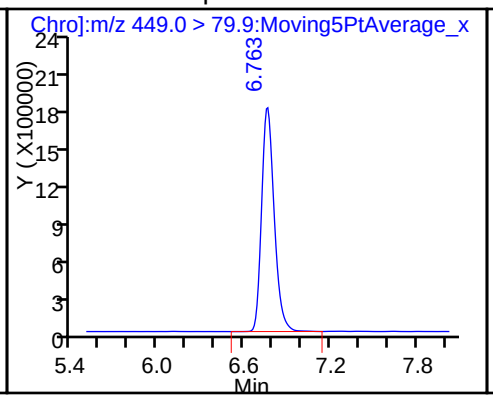
13 Perfluoroheptane Sulfonate



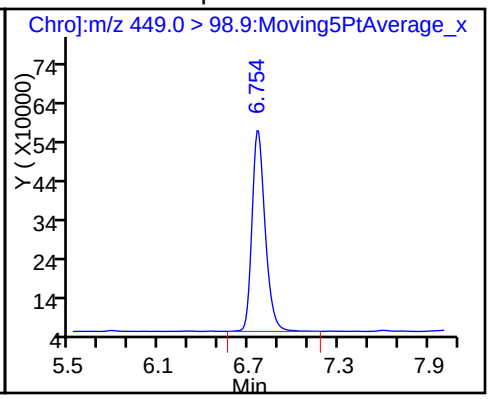
13 Perfluoroheptane Sulfonate



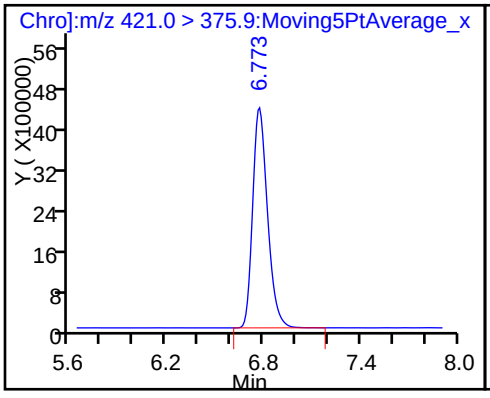
12 Perfluoroheptanesulfonic Acid



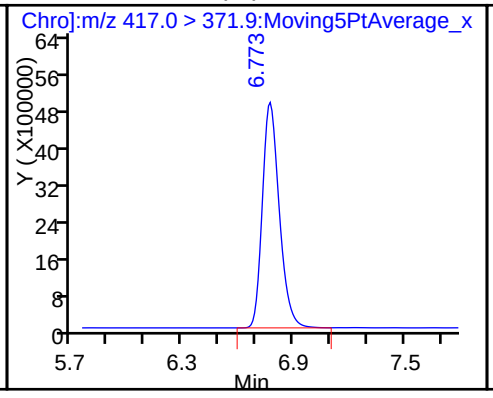
12 Perfluoroheptanesulfonic Acid



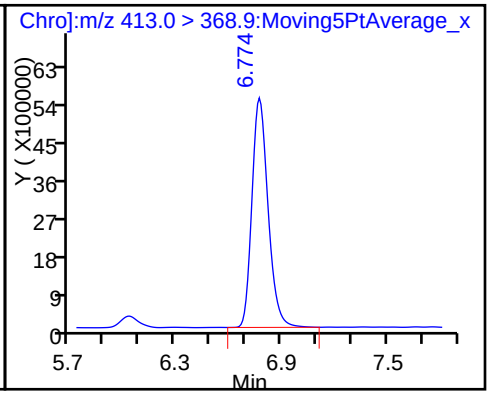
$ 14 13C8 PFOA



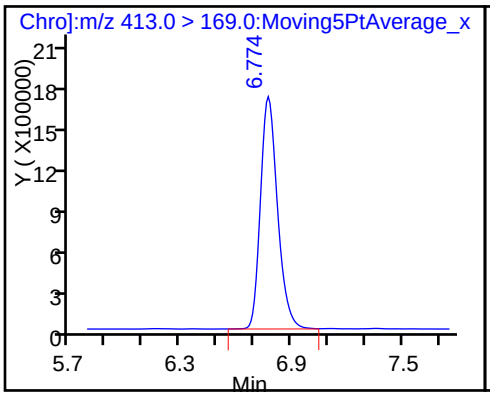
* 15 13C4 PFOA (IS)



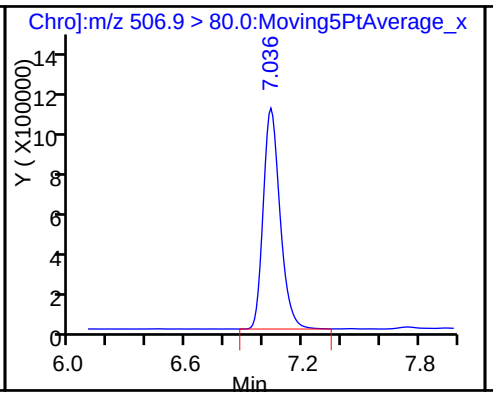
16 Perfluorooctanoic acid



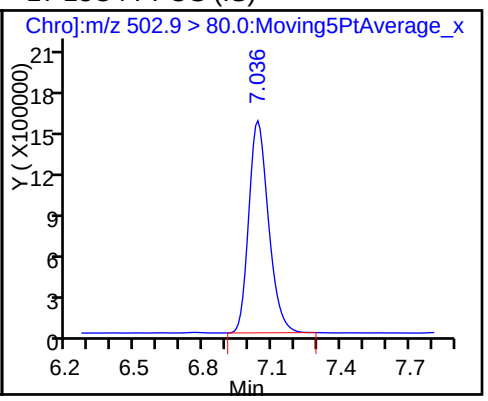
16 Perfluorooctanoic acid



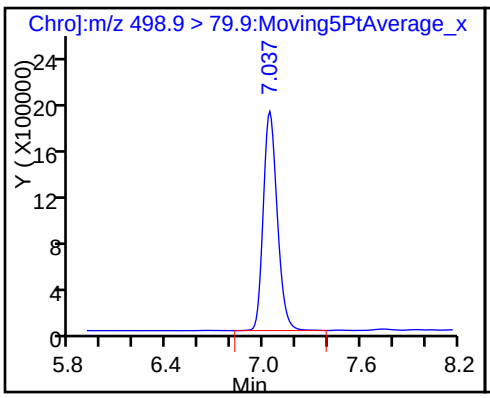
$ 18 13C8 PFOS



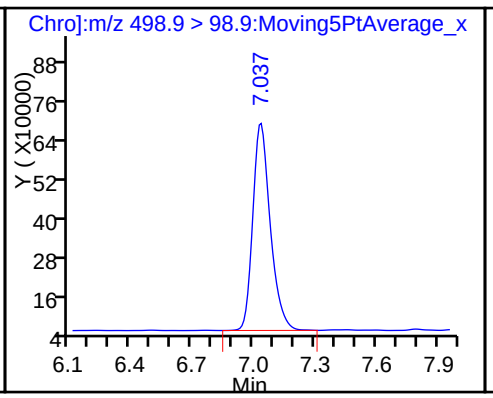
* 17 13C4 PFOS (IS)



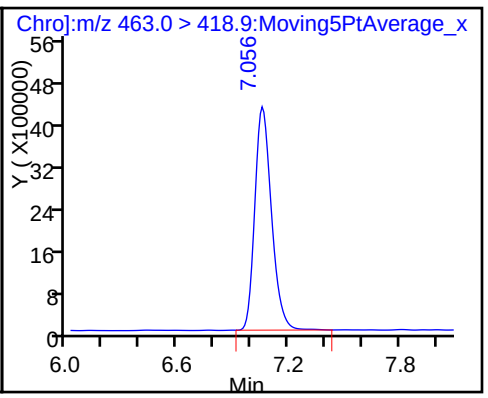
19 Perfluorooctane sulfonic acid



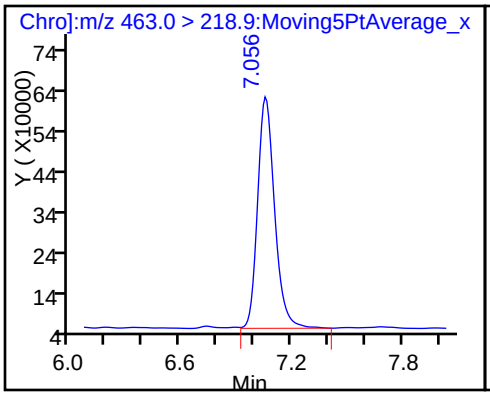
19 Perfluorooctane sulfonic acid



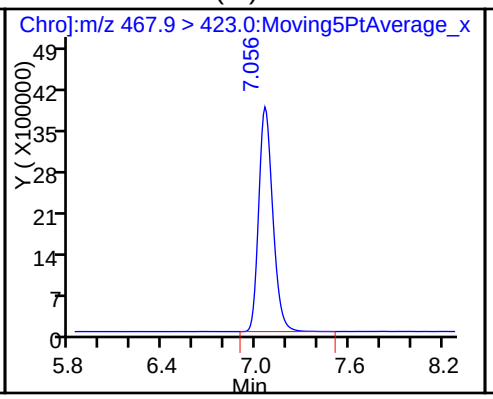
20 Perfluorononanoic acid



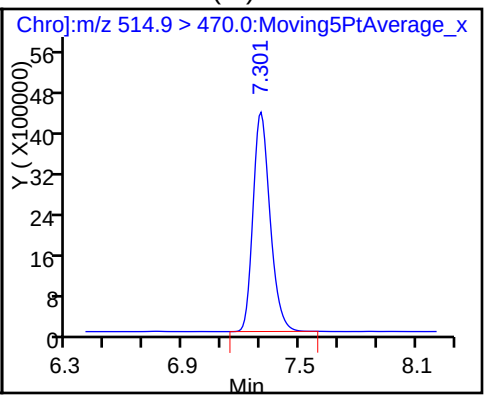
20 Perfluorononanoic acid



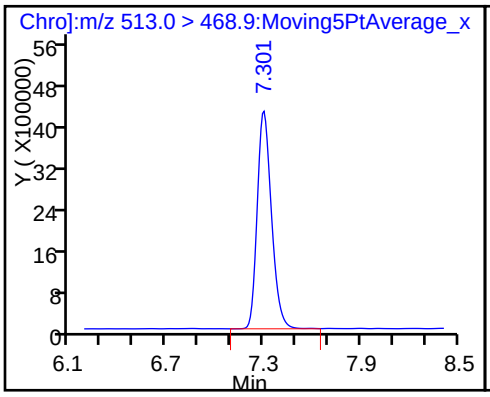
* 21 13C5 PFNA (IS)



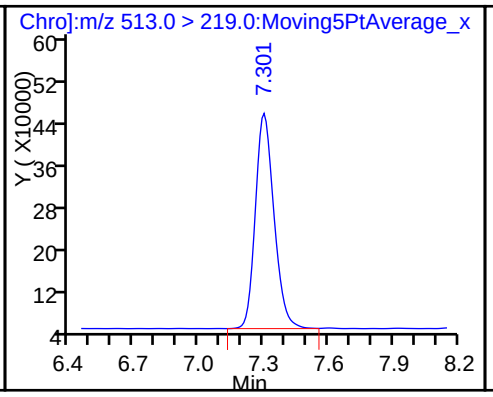
* 22 13C2 PFDA (IS)



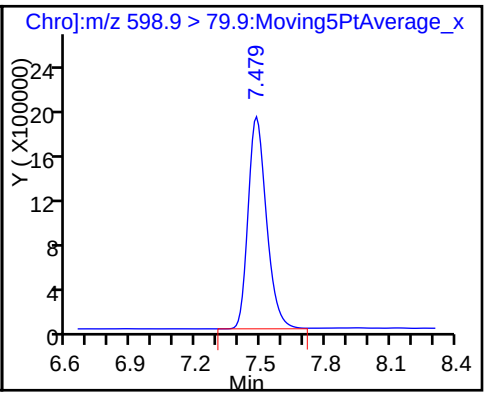
23 Perfluorodecanoic acid



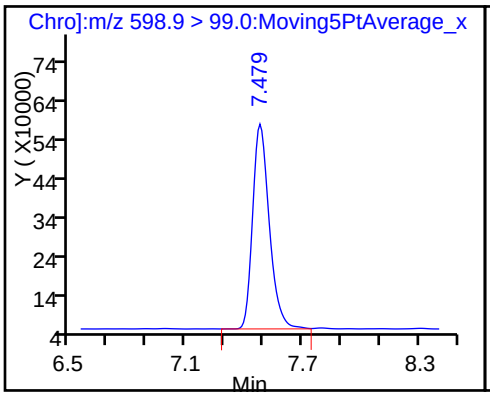
23 Perfluorodecanoic acid



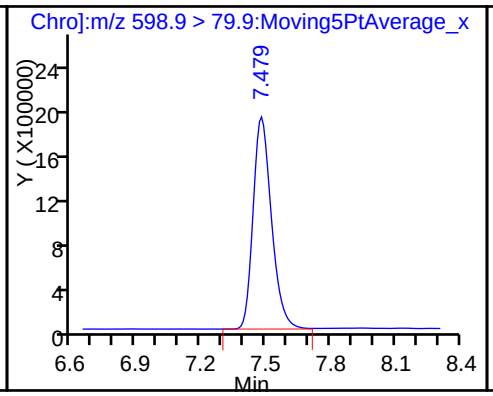
25 Perfluorodecane Sulfonate



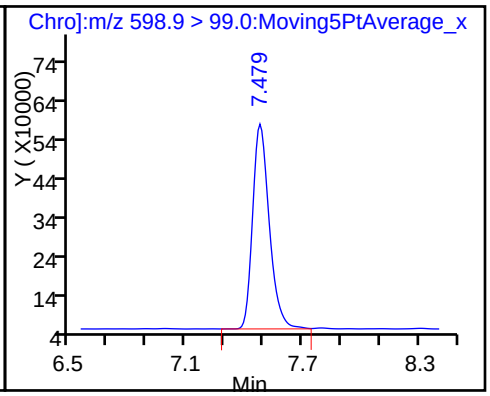
25 Perfluorodecane Sulfonate



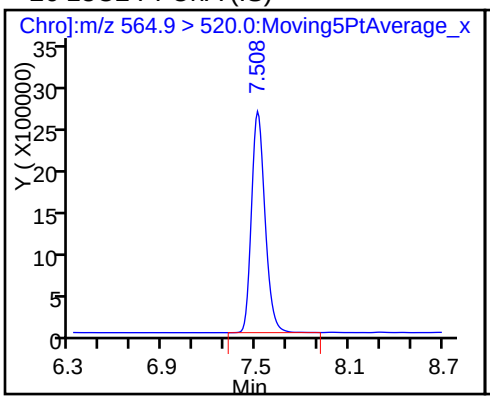
24 Perfluorodecane Sulfonic acid



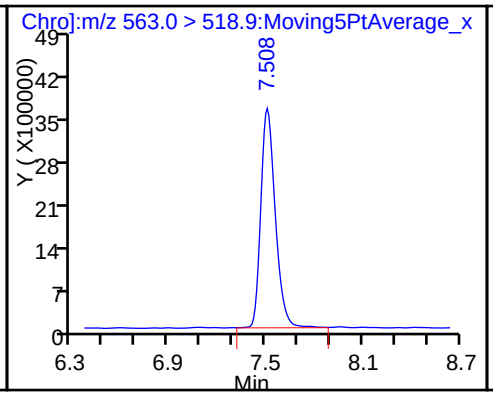
24 Perfluorodecane Sulfonic acid



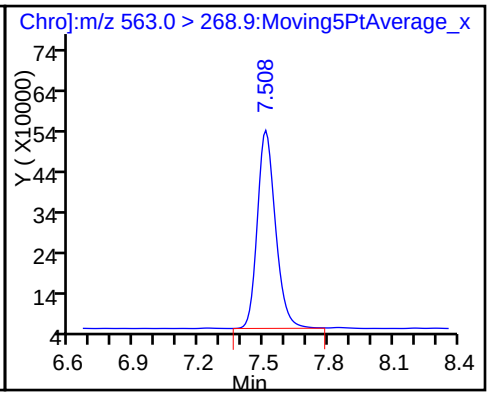
* 26 13C2 PFUnA (IS)



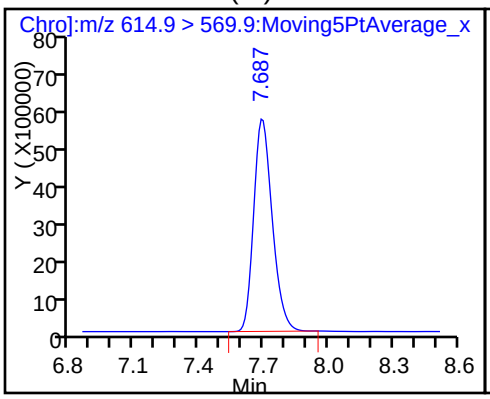
27 Perfluoroundecanoic acid



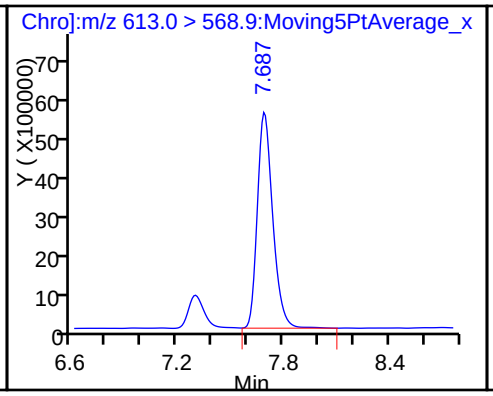
27 Perfluoroundecanoic acid



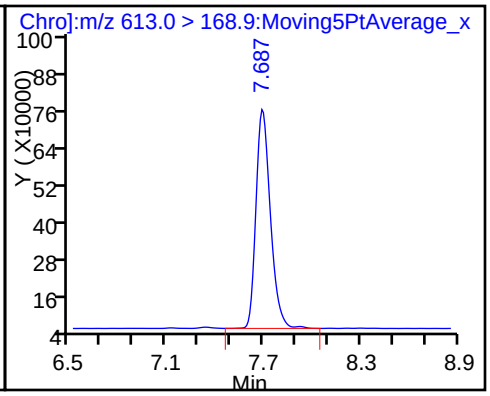
* 28 13C2 PFDoA (IS)



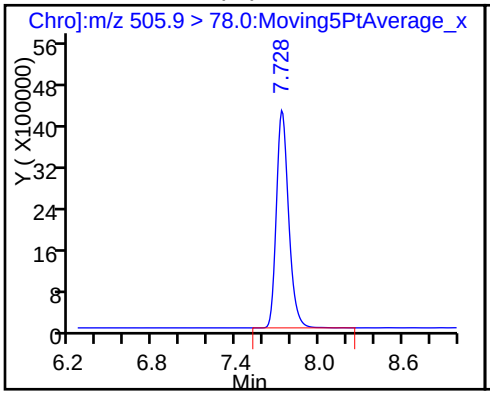
29 Perfluorododecanoic acid



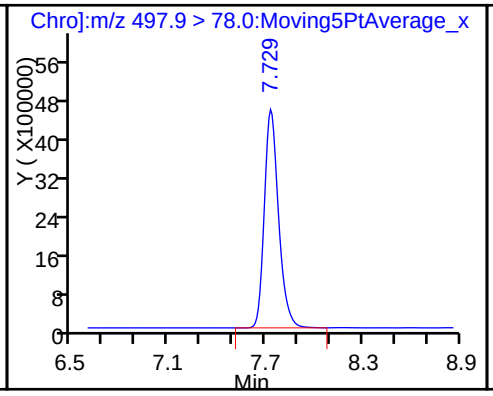
29 Perfluorododecanoic acid



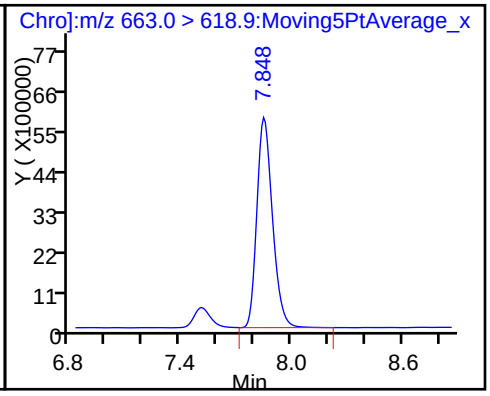
* 31 13C8 FOSA (IS)



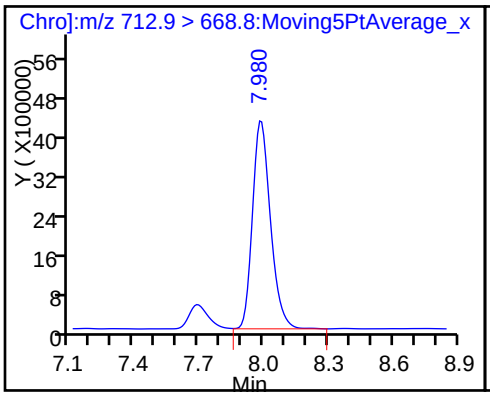
32 Perfluorooctane Sulfonamide



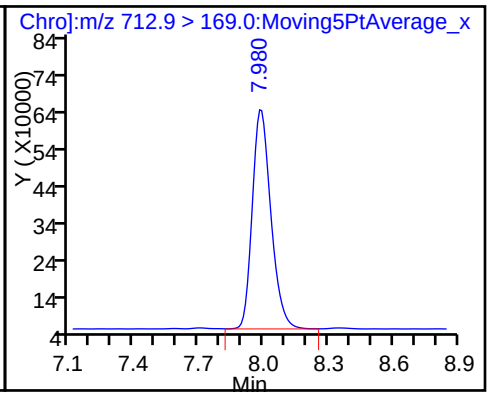
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Lab Sample ID: CCV 280-332793/36 Calibration Date: 07/07/2016 20:37

Instrument ID: LC_LCMS5 Calib Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calib End Date: 06/06/2016 16:28

Lab File ID: PC516G07071.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	Lin2		1.137		5.30	5.00	6.0	30.0
Perfluoropentanoic acid (PFPA)	Lin2		1.344		5.70	5.00	14.0	30.0
Perfluorobutane Sulfonate (PFBS)	Lin2		5.011		4.25	4.43	-4.0	30.0
Perfluorobutanesulfonic acid	Lin2		5.011		4.25	4.43	-4.0	30.0
Perfluorohexanoic acid (PFHxA)	Lin2		0.9860		5.20	5.00	4.1	30.0
Perfluorohexane Sulfonate (PFHxS)	Lin2		4.408		5.34	4.73	13.1	30.0
Perfluorohexanesulfonic acid	Lin2		4.408		5.34	4.73	13.1	30.0
Perfluoroheptanoic acid (PFHpA)	Lin2		0.9615		5.51	5.00	10.2	30.0
Perfluoroheptane Sulfonate	Lin2		1.219		4.79	4.76	0.7	30.0
Perfluoroheptanesulfonic Acid (PFHpS)	Lin2		1.219		4.79	4.76	0.7	30.0
Perfluorooctanoic acid (PFOA)	Lin2		1.153		5.50	5.00	10.1	30.0
Perfluorooctanesulfonic acid (PFOS)	Lin2		1.181		4.78	4.78	0.0	30.0
Perfluorononanoic acid (PFNA)	Lin2		1.138		5.05	5.00	1.0	30.0
Perfluorodecanoic acid (PFDA)	Lin2		1.061		5.25	5.00	5.0	30.0
Perfluorodecane sulfonate (PFDS)	Lin2		1.222		4.75	4.83	-1.6	30.0
Perfluorodecane Sulfonic acid	Lin2		1.222		4.75	4.83	-1.6	30.0
Perfluoroundecanoic acid (PFUnA)	Lin2		1.444		5.07	5.00	1.4	30.0
Perfluorododecanoic acid (PFDoA)	Lin2		1.042		5.04	5.00	0.9	30.0
Perfluorooctane Sulfonamide (FOSA)	Lin2		1.113		5.12	5.00	2.5	30.0
Perfluorotridecanoic Acid (PFTriA)	Lin2		1.000		5.34	5.00	6.7	30.0
Perfluorotetradecanoic acid (PFTeA)	Lin2		0.7567		6.40	5.00	28.0	30.0
13C8 PFOA	Lin2		0.9487		5.85	5.00	16.9	30.0
13C8 PFOS	Lin2		0.7273		5.67	4.78	18.7	30.0

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07071.d
Lims ID: CCV PFC L5
Client ID:
Sample Type: CCV
Inject. Date: 07-Jul-2016 20:37:03 ALS Bottle#: 0 Worklist Smp#: 36
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: CCV PFC L5, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 08-Jul-2016 09:17:53 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK002

First Level Reviewer: fiedlerh Date: 08-Jul-2016 08:29:51

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.361	4.361	0.0		29705007	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	4.361	4.361	0.0	1.000	16887932	5.30			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.374	5.374	0.0	0.907	13140557	5.70			
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.478	5.478	0.0	0.863	5509730	4.25			
298.9 > 98.9	5.478	5.478	0.0	0.863	1712873		3.22(1.80-3.35)		
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.478	5.478	0.0	0.863	5509730	4.25			
298.9 > 98.9	5.478	5.478	0.0	0.863	1712873		3.22(2.57-2.57)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.923	5.923	0.0		19559404	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.923	5.923	0.0	1.000	9642557	5.20			
313.0 > 118.6	5.913	5.923	-0.010	0.998	267793		36.01(34.05-63.23)		
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.348	6.348	0.0	1.000	5176168	5.34			
398.9 > 98.9	6.348	6.348	0.0	1.000	1685737		3.07(1.85-1.85)		
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.348	6.348	0.0	1.000	5176168	5.34			R
398.9 > 98.9	6.348	6.348	0.0	1.000	1685737		3.07(1.30-2.41)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.349	6.349	0.0	0.948	15216319	5.51			
363.0 > 168.9	6.349	6.349	0.0	0.948	3966193		3.84(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.348	6.348	0.0		2350808	9.46			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.678	6.678	0.0	0.958	5397243	4.79			
449.0 > 98.9	6.688	6.678	0.010	0.959	1630053		3.31(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.678	6.678	0.0	0.958	5397243	4.79			
449.0 > 98.9	6.688	6.678	0.010	0.959	1630053		3.31(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.697	6.697	0.0	1.000	15014464	5.85			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.698	6.698	0.0		31652528	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.698	6.698	0.0	1.000	18253745	5.50			
413.0 > 169.0	6.688	6.698	-0.010	0.999	5712585		3.20(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.970	6.970	0.0	1.000	3232888	5.67			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.970	6.970	0.0		8890618	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.970	6.970	0.0	1.000	5243110	4.78			R
498.9 > 98.9	6.970	6.970	0.0	1.000	1912597		2.74(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.990	6.990	0.0		24625930	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.990	6.990	0.0	1.000	14007979	5.05			
463.0 > 218.9	6.990	6.990	0.0	1.000	1982594		7.07(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.234	7.234	0.0		25573568	10.0			
23 Perfluorodecanoic acid									R
513.0 > 468.9	7.234	7.234	0.0	1.000	13566386	5.25			R
513.0 > 219.0	7.234	7.234	0.0	1.000	1419975		9.55(10.49-19.48)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.413	7.413	0.0	1.064	5482777	4.75			
598.9 > 99.0	7.413	7.413	0.0	1.064	1774328		3.09(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.413	7.413	0.0	1.064	5482777	4.75			
598.9 > 99.0	7.413	7.413	0.0	1.064	1774328		3.09(2.84-2.84)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.442	7.442	0.0		15862074	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.442	7.442	0.0	1.000	11451237	5.07			R
563.0 > 268.9	7.442	7.442	0.0	1.000	1475293		7.76(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.611	7.611	0.0		34018684	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.612	7.612	0.0	1.000	17729896	5.04			
613.0 > 168.9	7.621	7.612	0.009	1.001	2263893		7.83(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.699	7.699	0.0		25932993	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.700	7.700	0.0	1.000	14435242	5.12			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.763	7.763	0.0	1.020	17007992	5.34			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.895	7.895	0.0	1.037	12871357	6.40			
712.9 > 169.0	7.895	7.895	0.0	1.037	1878561		6.85(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Reagents:

PFC-IS_00021	Amount Added: 20.00	Units: uL
PFC_Surr_00021	Amount Added: 10.00	Units: uL
PFC-LCS_00078	Amount Added: 10.00	Units: uL

Report Date: 08-Jul-2016 09:17:54 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07071.d

Injection Date: 07-Jul-2016 20:37:03 Instrument ID: LC_LCMS5

Lims ID: CCV PFC L5

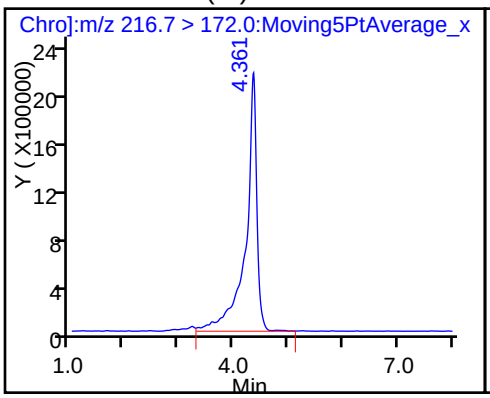
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 36

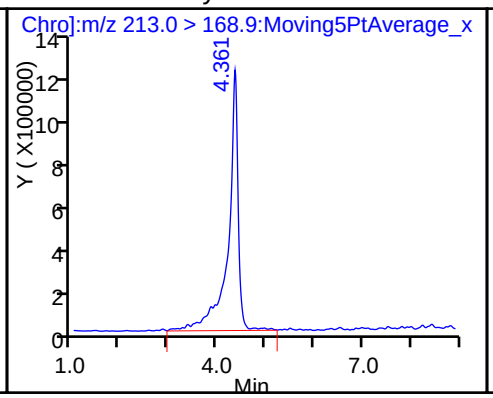
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

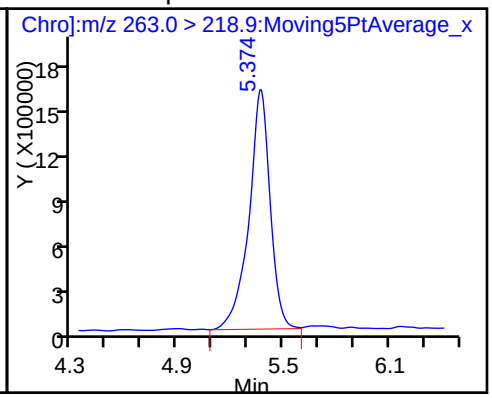
* 1 13C4 PFBA (IS)



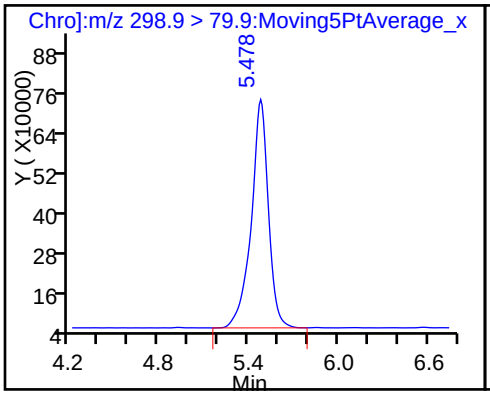
2 Perfluorobutyric acid



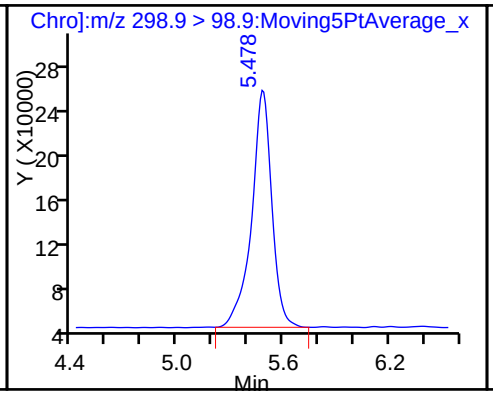
3 Perfluoropentanoic acid



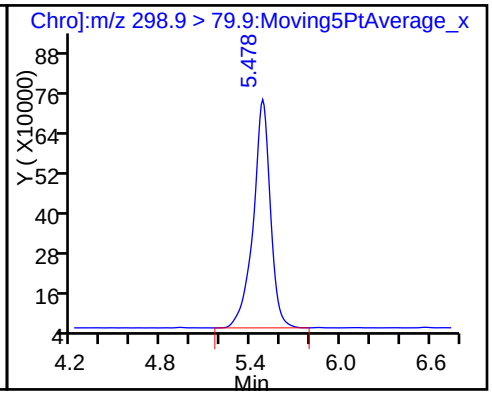
4 Perfluorobutane Sulfonate



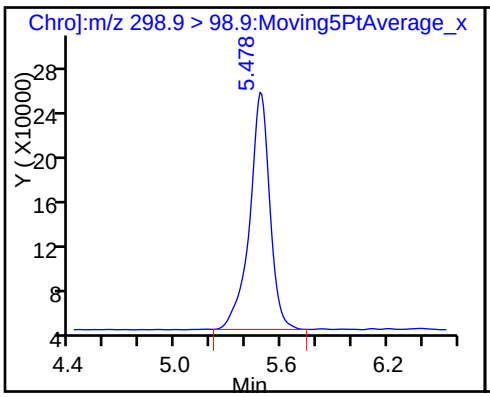
4 Perfluorobutane Sulfonate



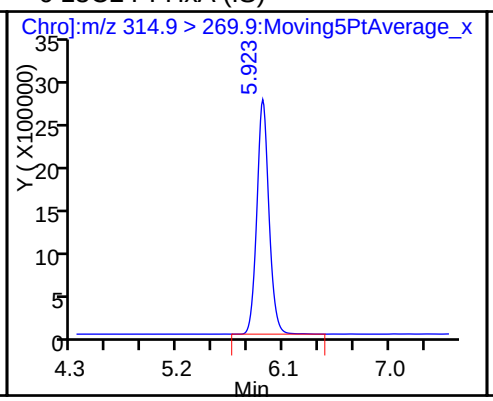
5 Perfluorobutanesulfonic acid



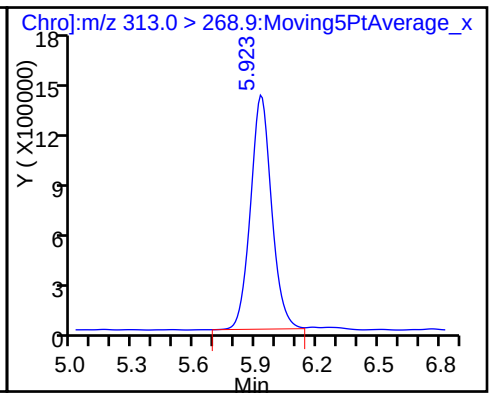
5 Perfluorobutanesulfonic acid



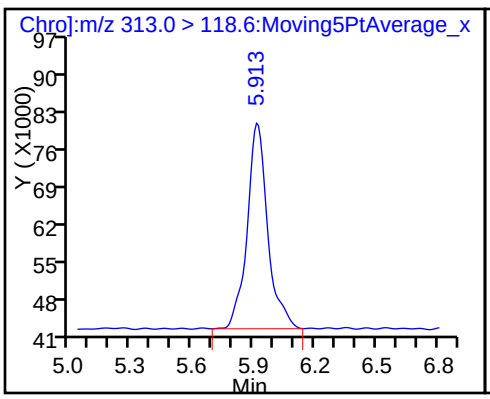
* 6 13C2 PFHxA (IS)



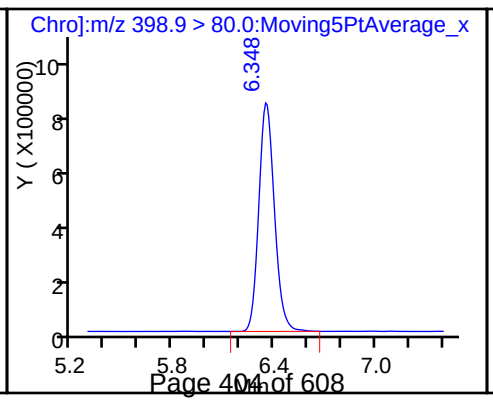
7 Perfluorohexanoic acid



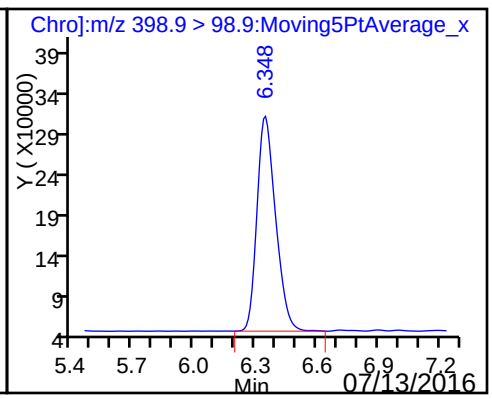
7 Perfluorohexanoic acid



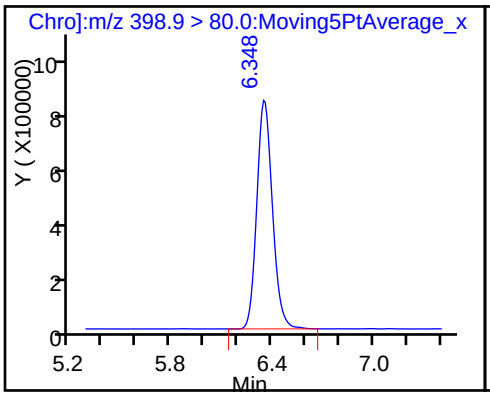
11 Perfluorohexanesulfonic acid



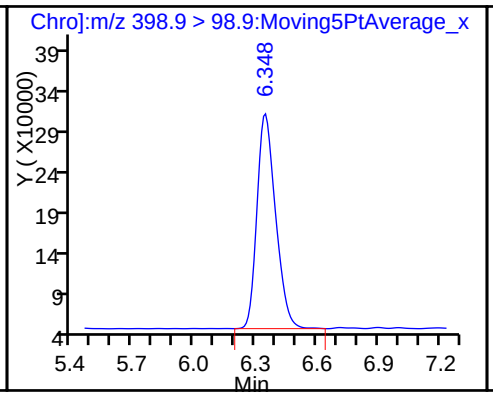
11 Perfluorohexanesulfonic acid



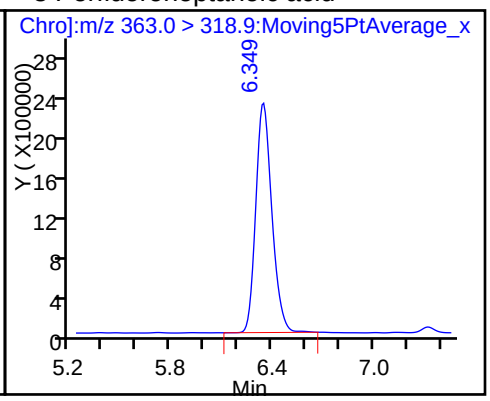
10 Perfluorohexane Sulfonate



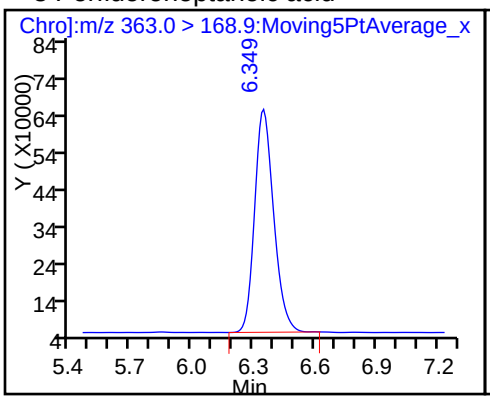
10 Perfluorohexane Sulfonate



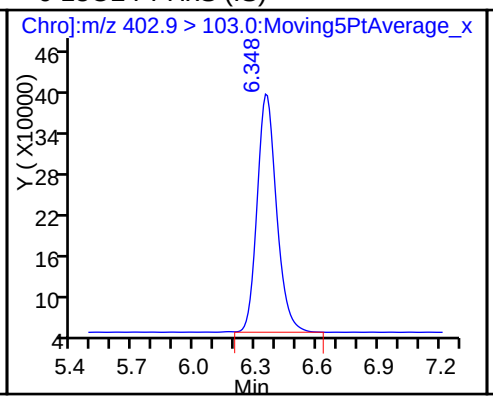
8 Perfluoroheptanoic acid



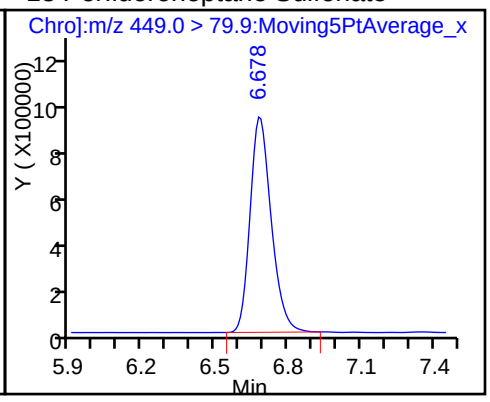
8 Perfluoroheptanoic acid



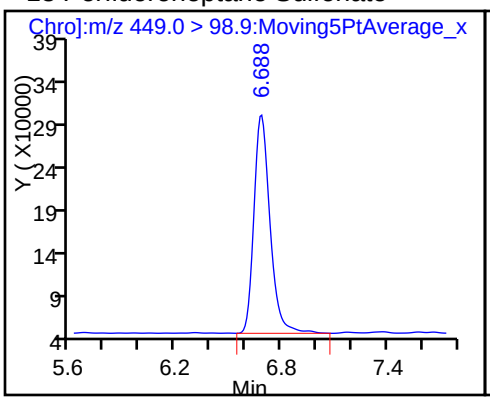
* 9 18O2 PFHxS (IS)



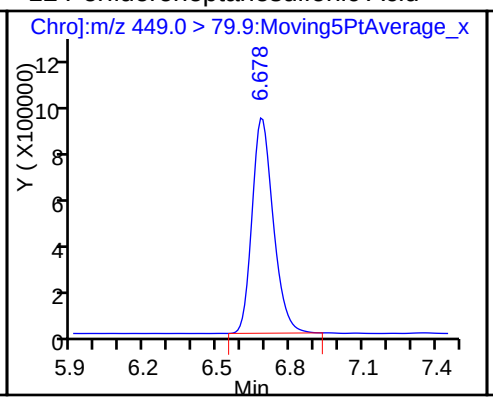
13 Perfluoroheptane Sulfonate



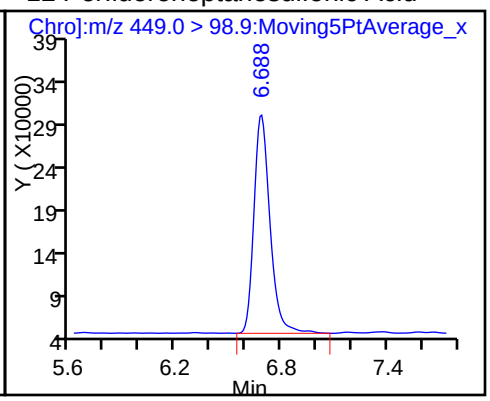
13 Perfluoroheptane Sulfonate



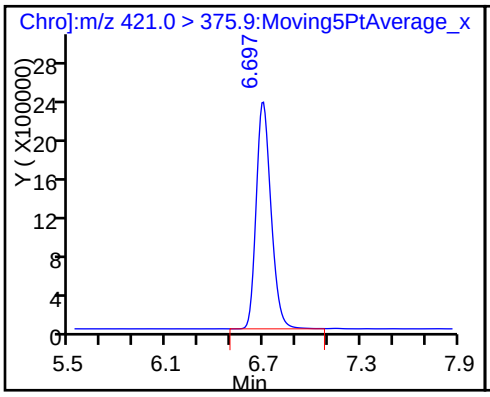
12 Perfluoroheptanesulfonic Acid



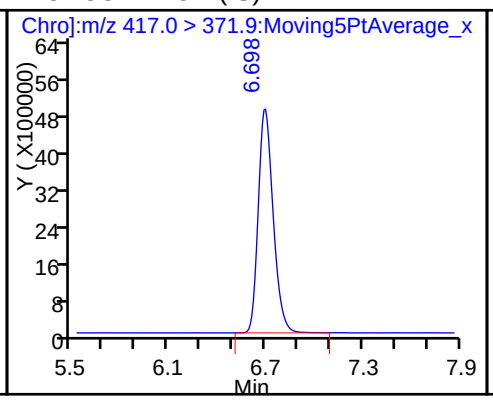
12 Perfluoroheptanesulfonic Acid



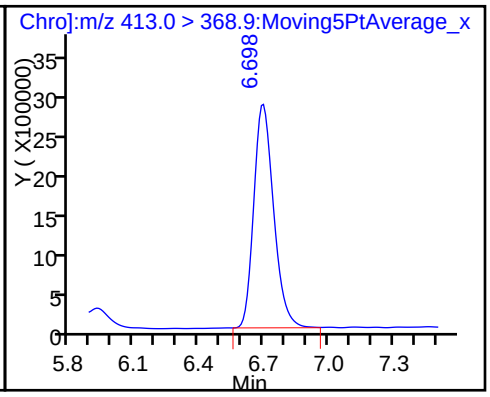
$ 14 13C8 PFOA



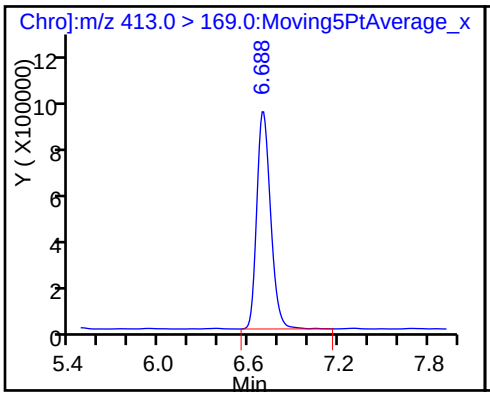
* 15 13C4 PFOA (IS)



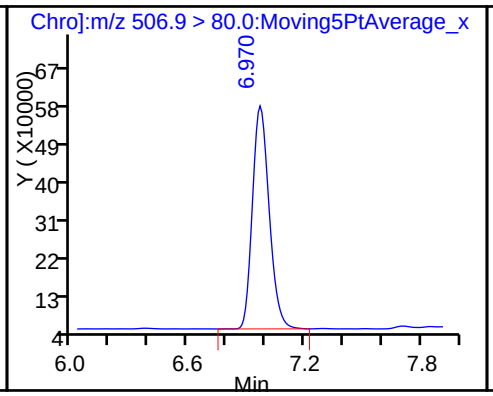
16 Perfluorooctanoic acid



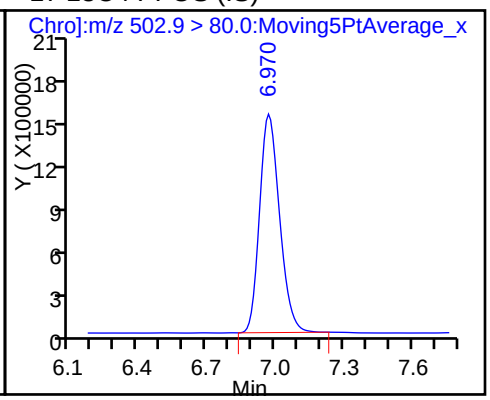
16 Perfluorooctanoic acid



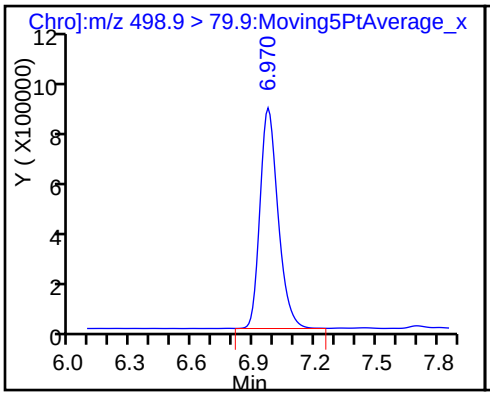
$ 18 13C8 PFOS



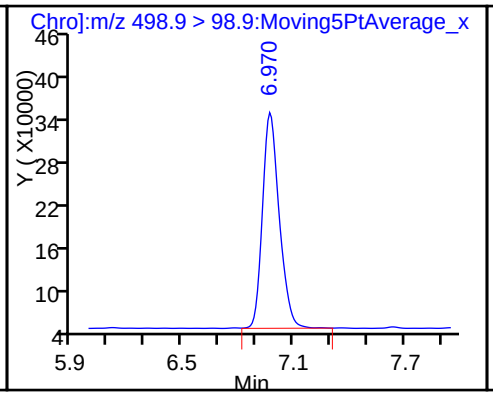
* 17 13C4 PFOS (IS)



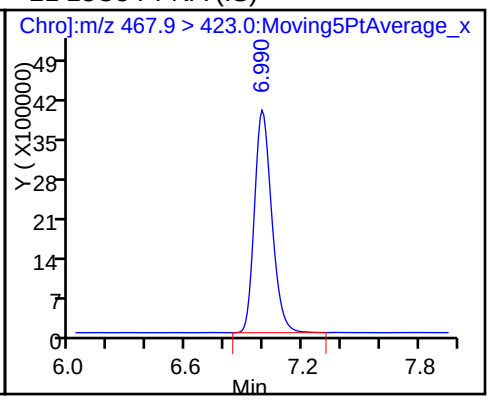
19 Perfluorooctane sulfonic acid



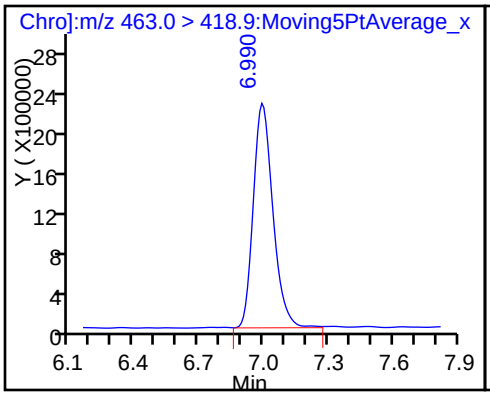
19 Perfluorooctane sulfonic acid



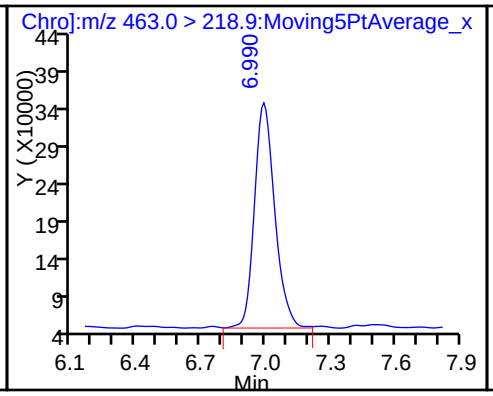
* 21 13C5 PFNA (IS)



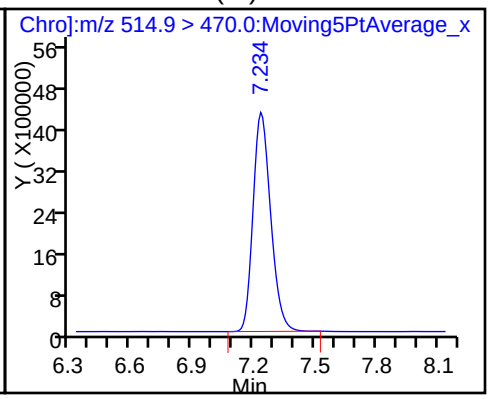
20 Perfluorononanoic acid



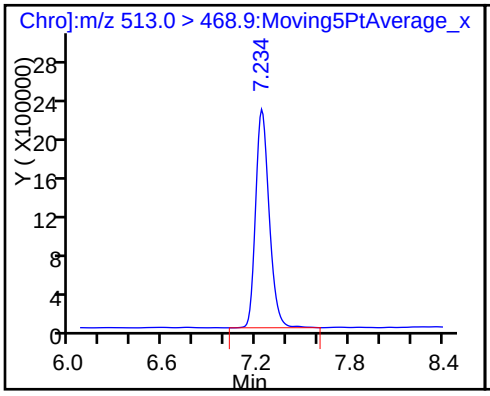
20 Perfluorononanoic acid



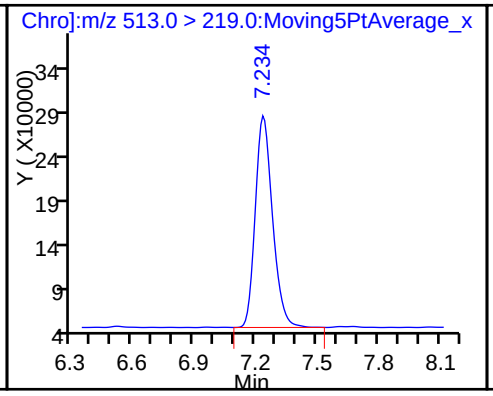
* 22 13C2 PFDA (IS)



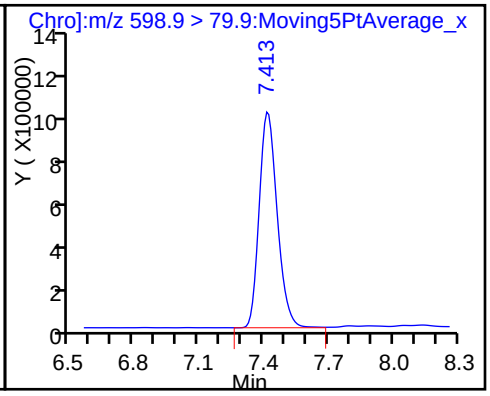
23 Perfluorodecanoic acid



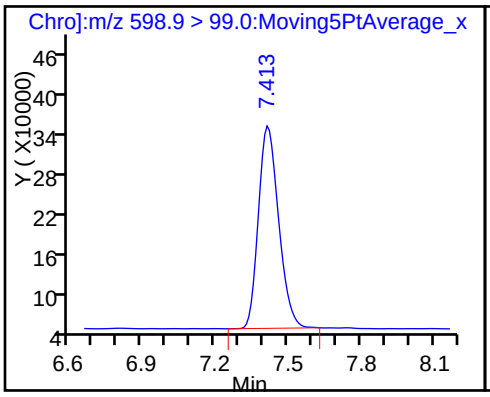
23 Perfluorodecanoic acid



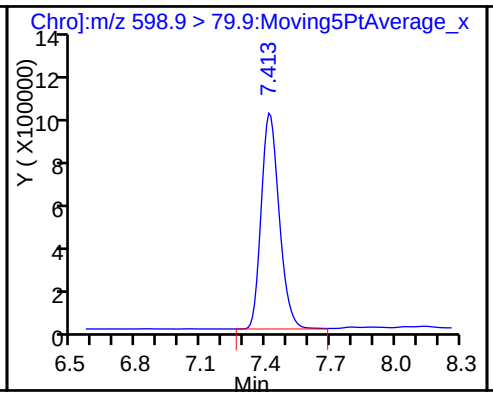
25 Perfluorodecane Sulfonate



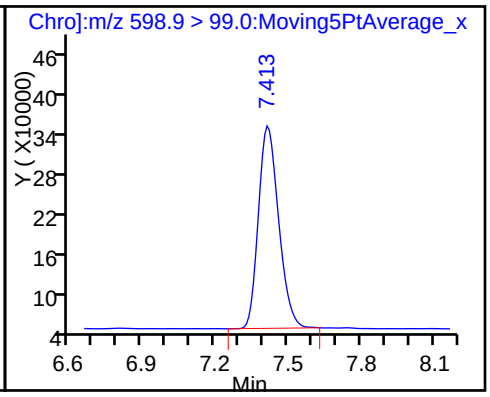
25 Perfluorodecane Sulfonate



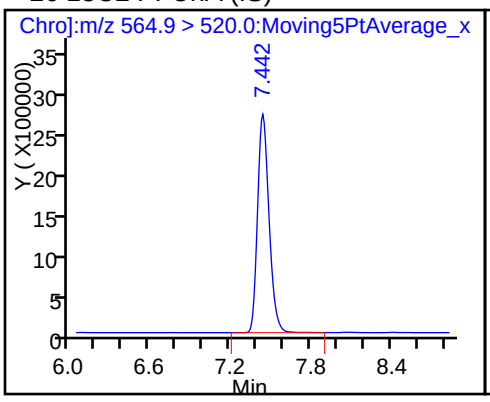
24 Perfluorodecane Sulfonic acid



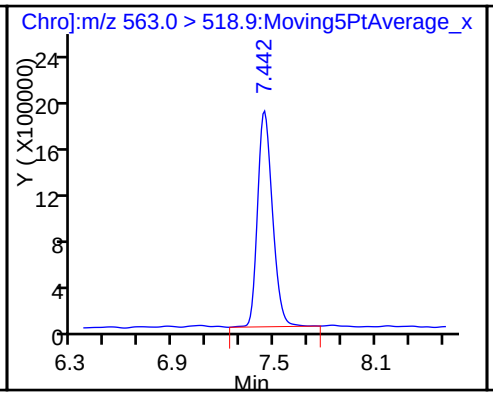
24 Perfluorodecane Sulfonic acid



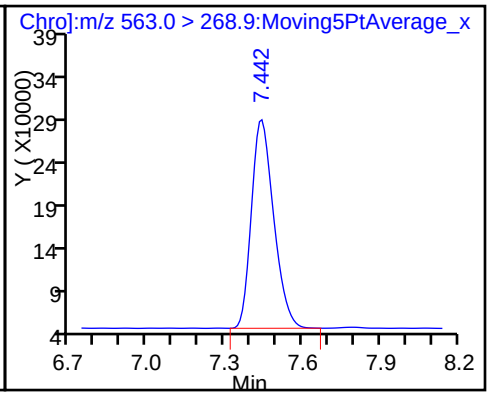
* 26 13C2 PFUnA (IS)



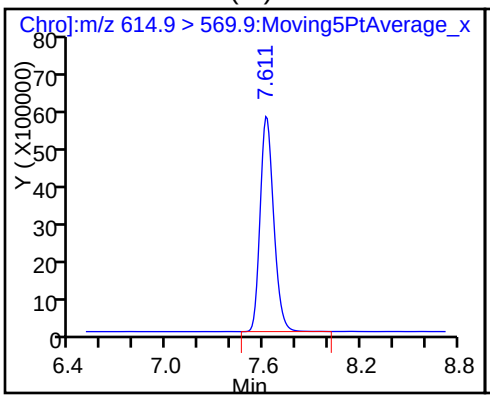
27 Perfluoroundecanoic acid



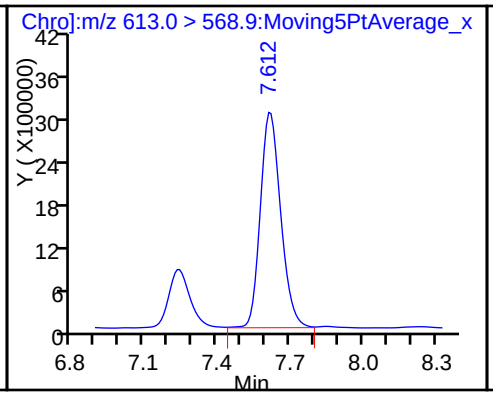
27 Perfluoroundecanoic acid



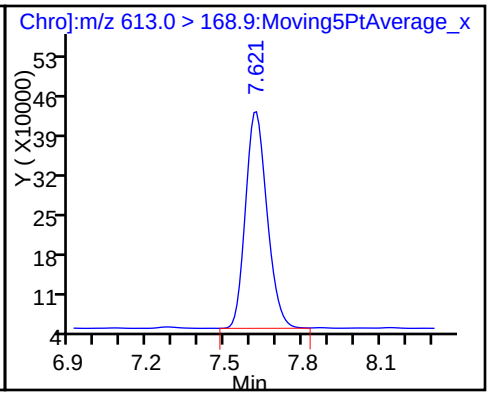
* 28 13C2 PFDoA (IS)



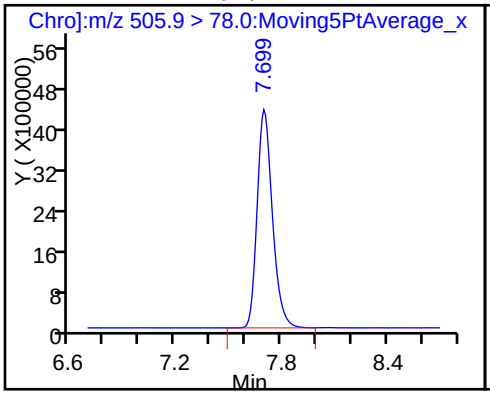
29 Perfluorododecanoic acid



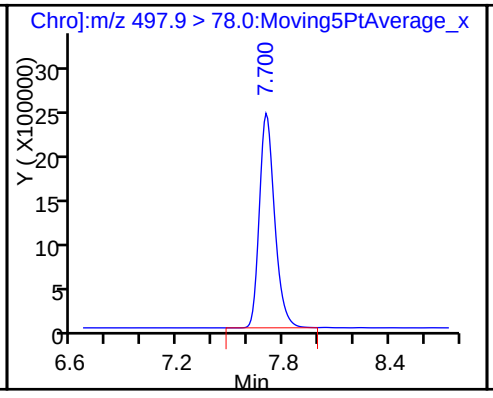
29 Perfluorododecanoic acid



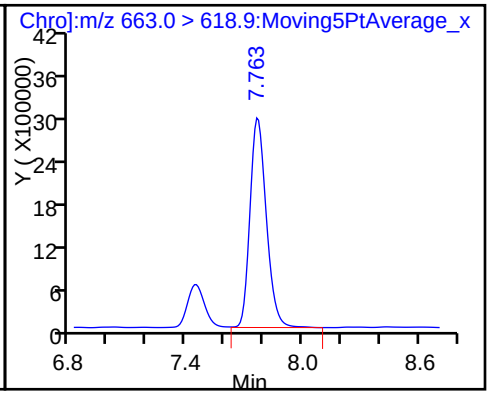
* 31 13C8 FOSA (IS)



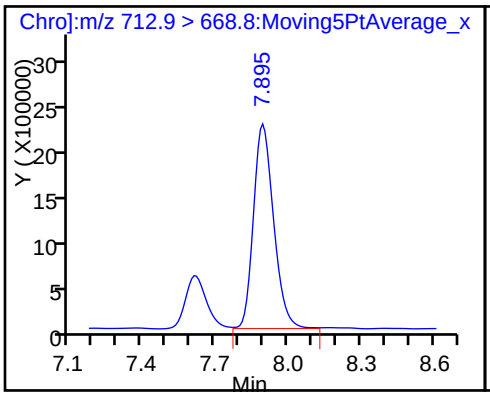
32 Perfluorooctane Sulfonamide



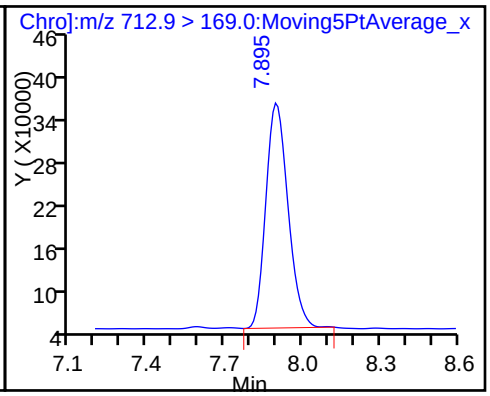
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Lab Sample ID: CCV 280-333083/3 Calibration Date: 07/08/2016 13:01

Instrument ID: LC_LCMS5 Calib Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calib End Date: 06/06/2016 16:28

Lab File ID: PC516G08008.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	Lin2		1.007		9.39	10.0	-6.1	30.0
Perfluoropentanoic acid (PFPA)	Lin2		1.242		10.6	10.0	5.6	30.0
Perfluorobutane Sulfonate (PFBS)	Lin2		4.520		7.66	8.85	-13.5	30.0
Perfluorobutanesulfonic acid	Lin2		4.520		7.66	8.85	-13.5	30.0
Perfluorohexanoic acid (PFHxA)	Lin2		0.9040		9.56	10.0	-4.4	30.0
Perfluoroheptanoic acid (PFHpA)	Lin2		0.9106		10.5	10.0	4.7	30.0
Perfluorohexane Sulfonate (PFHxS)	Lin2		4.017		9.81	9.45	3.8	30.0
Perfluorohexanesulfonic acid	Lin2		4.017		9.81	9.45	3.8	30.0
Perfluoroheptane Sulfonate	Lin2		1.110		8.72	9.52	-8.4	30.0
Perfluoroheptanesulfonic Acid (PFHpS)	Lin2		1.110		8.72	9.52	-8.4	30.0
Perfluorooctanoic acid (PFOA)	Lin2		1.084		10.4	10.0	4.1	30.0
Perfluorooctanesulfonic acid (PFOS)	Lin2		1.144		9.32	9.55	-2.4	30.0
Perfluorononanoic acid (PFNA)	Lin2		1.123		10.0	10.0	0.1	30.0
Perfluorodecanoic acid (PFDA)	Lin2		0.998		9.91	10.0	-1.0	30.0
Perfluorodecane sulfonate (PFDS)	Lin2		1.174		9.16	9.65	-5.1	30.0
Perfluorodecane Sulfonic acid	Lin2		1.174		9.16	9.65	-5.1	30.0
Perfluoroundecanoic acid (PFUnA)	Lin2		1.358		9.58	10.0	-4.2	30.0
Perfluorododecanoic acid (PFDoA)	Lin2		0.9944		9.68	10.0	-3.2	30.0
Perfluorooctane Sulfonamide (FOSA)	Lin2		1.218		11.2	10.0	12.2	30.0
Perfluorotridecanoic Acid (PFTriA)	Lin2		0.9652		10.4	10.0	3.8	30.0
Perfluorotetradecanoic acid (PFTeA)	Lin2		0.7302		12.4	10.0	23.6	30.0
13C8 PFOA	Lin2		0.8672		10.7	10.0	7.3	30.0
13C8 PFOS	Lin2		0.6386		9.99	9.56	4.5	30.0

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08008.d
Lims ID: CCV PFC L6
Client ID:
Sample Type: CCV
Inject. Date: 08-Jul-2016 13:01:10 ALS Bottle#: 0 Worklist Smp#: 3
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: CCV PFC L6, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 11-Jul-2016 11:15:07 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK031

First Level Reviewer: fiedlerh Date: 11-Jul-2016 10:37:15

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.323	4.323	0.0		33975235	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	4.323	4.323	0.0	1.000	34221684	9.39			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.308	5.308	0.0	0.906	26819443	10.6			
4 Perfluorobutane Sulfonate									R
298.9 > 79.9	5.412	5.412	0.0	0.862	10916806	7.66			R
298.9 > 98.9	5.412	5.412	0.0	0.862	3177566		3.44(1.80-3.35)		
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.412	5.412	0.0	0.862	10916806	7.66			
298.9 > 98.9	5.412	5.412	0.0	0.862	3177566		3.44(2.57-2.57)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.856	5.856	0.0		21589651	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.857	5.857	0.0	1.000	19516263	9.56			
313.0 > 118.6	5.866	5.857	0.009	1.002	530343		36.80(34.05-63.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.282	6.282	0.0		2581505	9.46			
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.282	6.282	0.0	1.000	10358971	9.81			
398.9 > 98.9	6.282	6.282	0.0	1.000	3259612		3.18(1.85-1.85)		
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.282	6.282	0.0	1.000	10358971	9.81			R
398.9 > 98.9	6.282	6.282	0.0	1.000	3259612		3.18(1.30-2.41)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.282	6.282	0.0	0.947	28909452	10.5			
363.0 > 168.9	6.282	6.282	0.0	0.947	7678381		3.77(3.35-6.23)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.621	6.621	0.0	0.958	10396830	8.72			
449.0 > 98.9	6.621	6.621	0.0	0.958	3359762		3.09(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.621	6.621	0.0	0.958	10396830	8.72			
449.0 > 98.9	6.621	6.621	0.0	0.958	3359762		3.09(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.631	6.631	0.0	1.000	27532080	10.7			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.631	6.631	0.0		31748602	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.632	6.632	0.0	1.000	34407150	10.4			
413.0 > 169.0	6.632	6.632	0.0	1.000	10576060		3.25(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.913	6.913	0.0	1.000	6003808	9.99			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.914	6.914	0.0	1.000	10744860	9.32			R
498.9 > 98.9	6.914	6.914	0.0	1.000	3757384		2.86(1.31-2.43)		
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.913	6.913	0.0		9402312	9.56			
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.933	6.933	0.0		23933314	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.933	6.933	0.0	1.000	26874639	10.0			
463.0 > 218.9	6.933	6.933	0.0	1.000	4340020		6.19(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.187	7.187	0.0		27110708	10.0			
23 Perfluorodecanoic acid									
513.0 > 468.9	7.187	7.187	0.0	1.000	27052624	9.90			
513.0 > 219.0	7.187	7.187	0.0	1.000	2340221		11.56(10.49-19.48)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.375	7.375	0.0	1.067	11139505	9.16			
598.9 > 99.0	7.375	7.375	0.0	1.067	3263188		3.41(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.375	7.375	0.0	1.067	11139505	9.16			
598.9 > 99.0	7.375	7.375	0.0	1.067	3263188		3.41(2.84-2.84)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.414	7.414	0.0		16100934	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.414	7.414	0.0	1.000	21865746	9.58			R
563.0 > 268.9	7.414	7.414	0.0	1.000	2709323		8.07(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.592	7.592	0.0		34196739	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.593	7.593	0.0	1.000	34004432	9.68			
613.0 > 168.9	7.593	7.593	0.0	1.000	4366186		7.79(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.614	7.614	0.0		23467548	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.615	7.615	0.0	1.000	28580127	11.2			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.753	7.753	0.0	1.021	33007934	10.4			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.895	7.895	0.0	1.040	24968688	12.4			
712.9 > 169.0	7.895	7.895	0.0	1.040	3817275		6.54(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Reagents:

PFC-LCS_00078	Amount Added: 20.00	Units: uL
PFC_Surr_00021	Amount Added: 20.00	Units: uL
PFC-IS_00021	Amount Added: 20.00	Units: uL

Report Date: 11-Jul-2016 11:15:08 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08008.d

Injection Date: 08-Jul-2016 13:01:10 Instrument ID: LC_LCMS5

Lims ID: CCV PFC L6

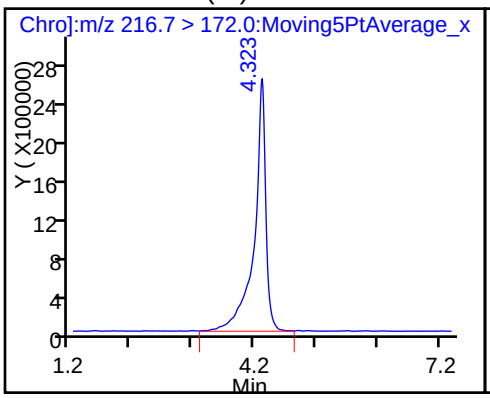
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 3

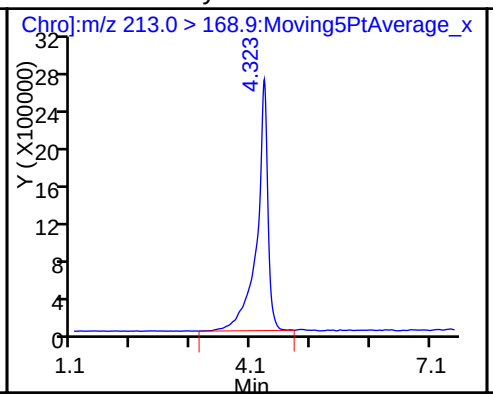
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

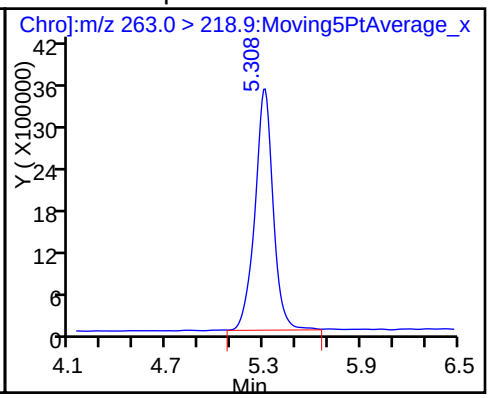
* 1 13C4 PFBA (IS)



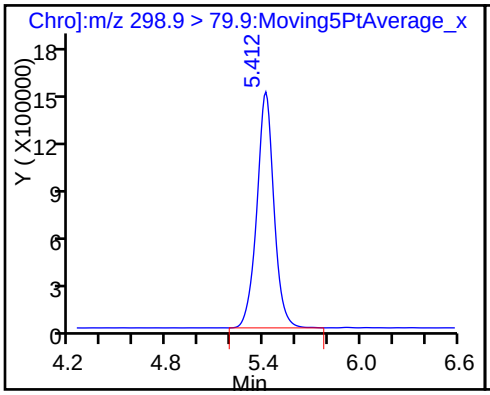
2 Perfluorobutyric acid



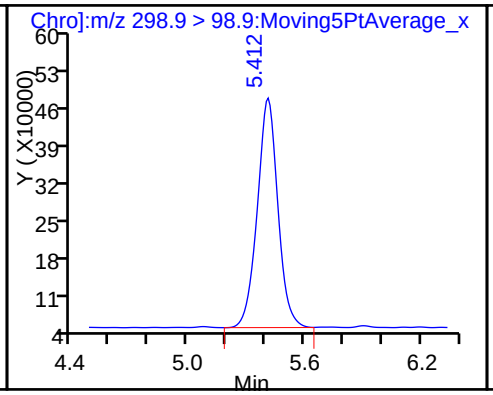
3 Perfluoropentanoic acid



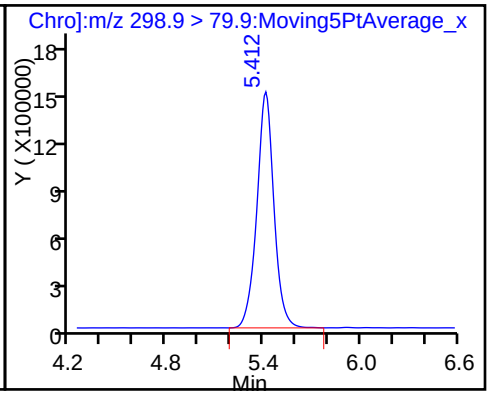
4 Perfluorobutane Sulfonate



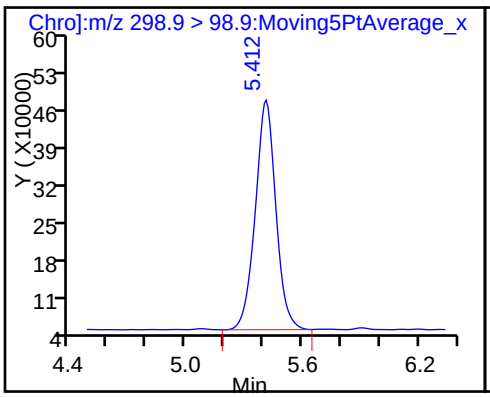
4 Perfluorobutane Sulfonate



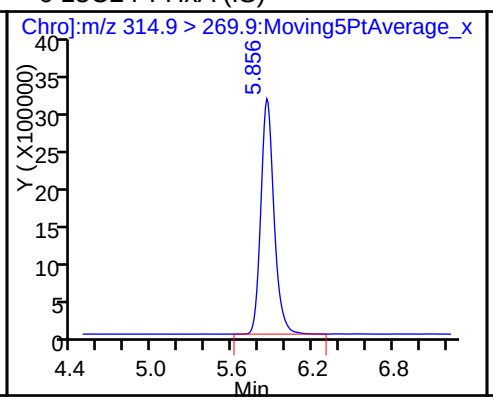
5 Perfluorobutanesulfonic acid



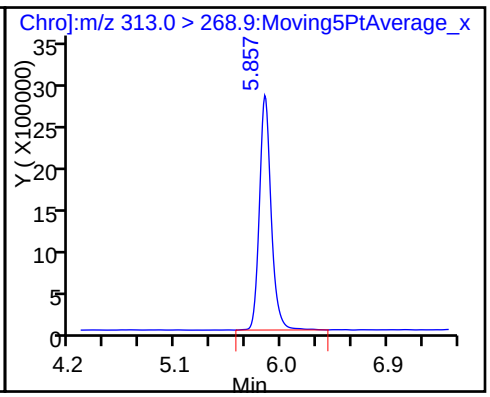
5 Perfluorobutanesulfonic acid



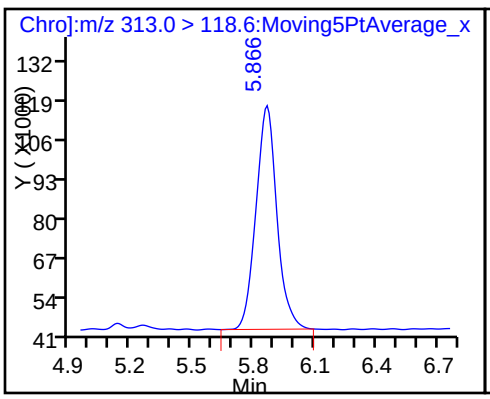
* 6 13C2 PFHxA (IS)



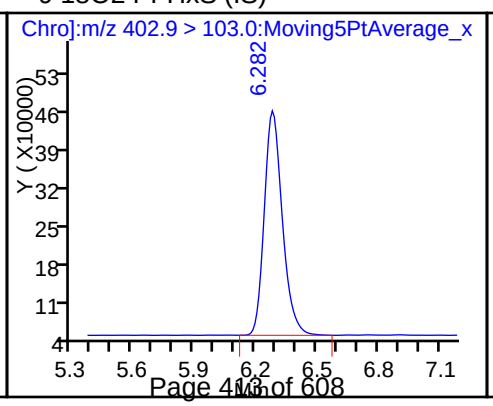
7 Perfluorohexanoic acid



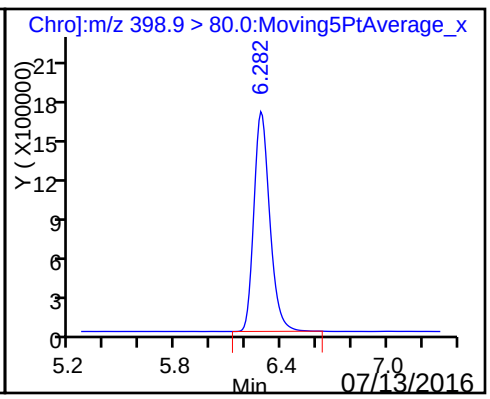
7 Perfluorohexanoic acid



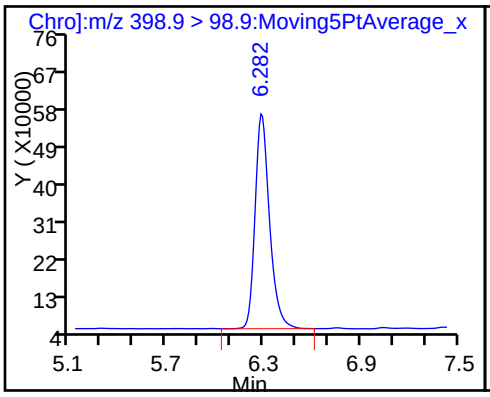
* 9 18O2 PFHxS (IS)



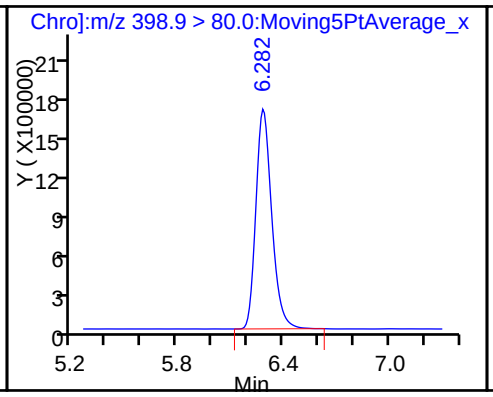
11 Perfluorohexanesulfonic acid



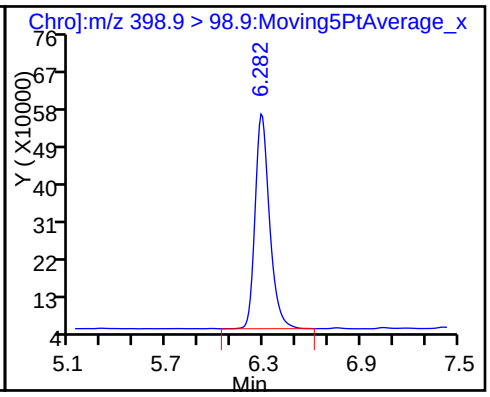
11 Perfluorohexanesulfonic acid



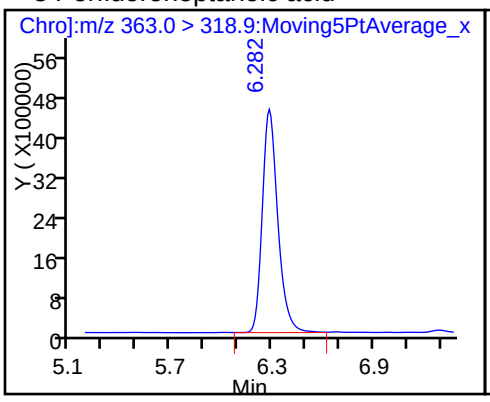
10 Perfluorohexane Sulfonate



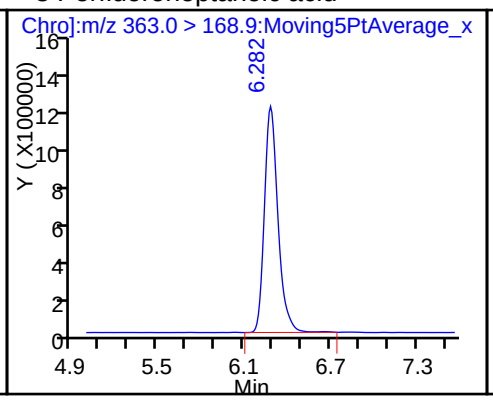
10 Perfluorohexane Sulfonate



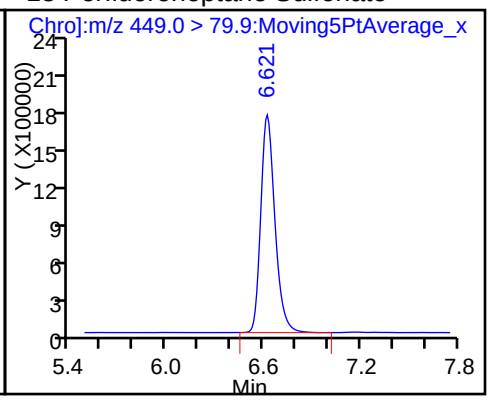
8 Perfluoroheptanoic acid



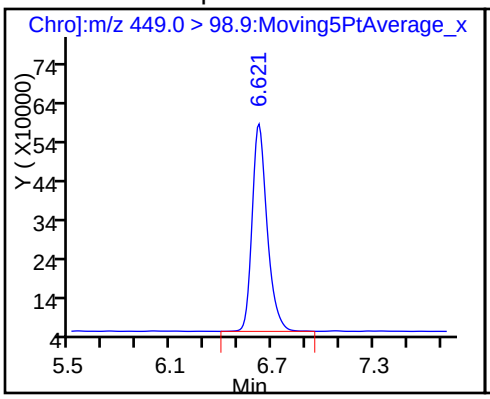
8 Perfluoroheptanoic acid



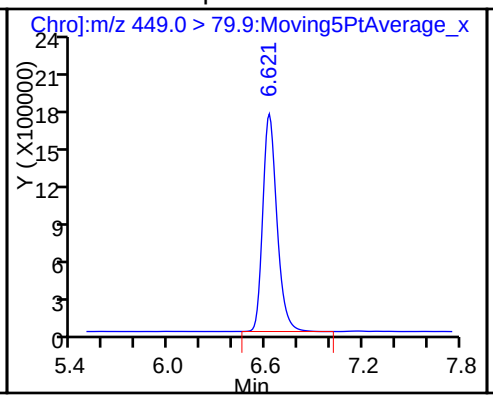
13 Perfluoroheptane Sulfonate



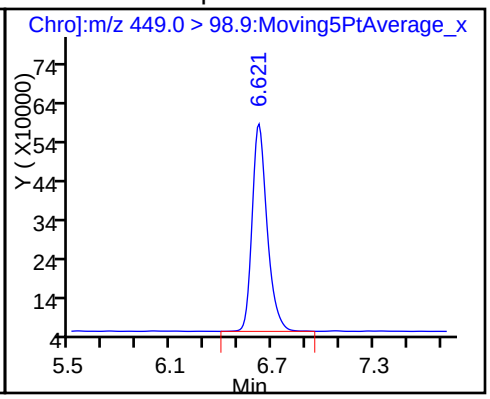
13 Perfluoroheptane Sulfonate



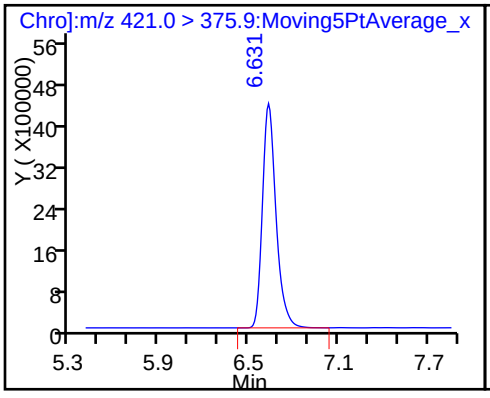
12 Perfluoroheptanesulfonic Acid



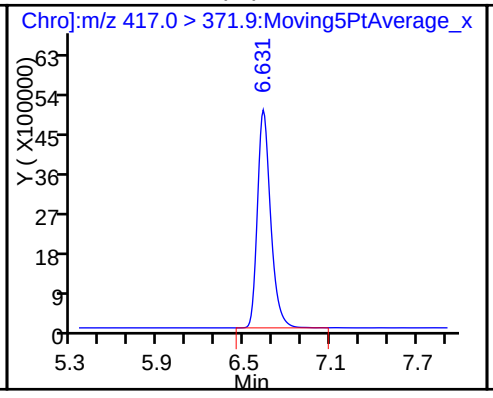
12 Perfluoroheptanesulfonic Acid



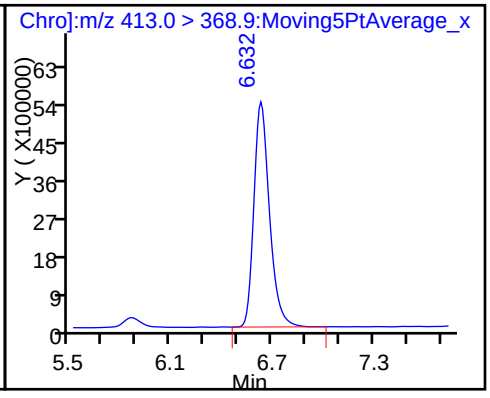
$ 14 13C8 PFOA



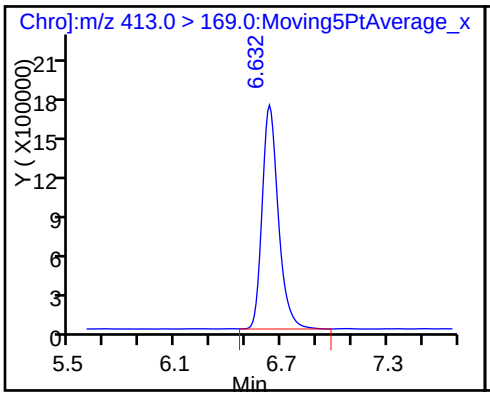
* 15 13C4 PFOA (IS)



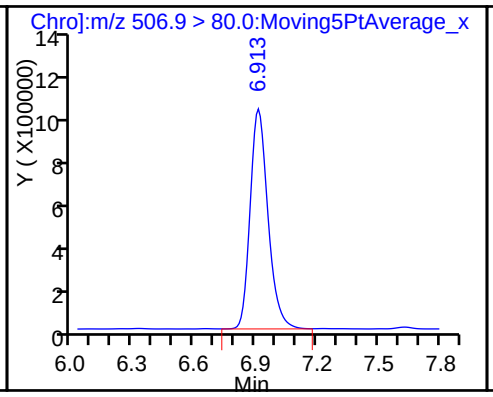
16 Perfluorooctanoic acid



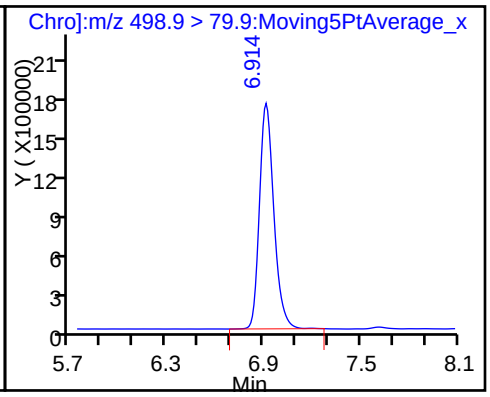
16 Perfluorooctanoic acid



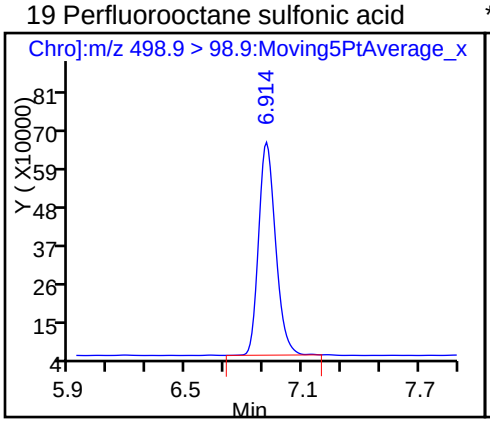
$ 18 13C8 PFOS



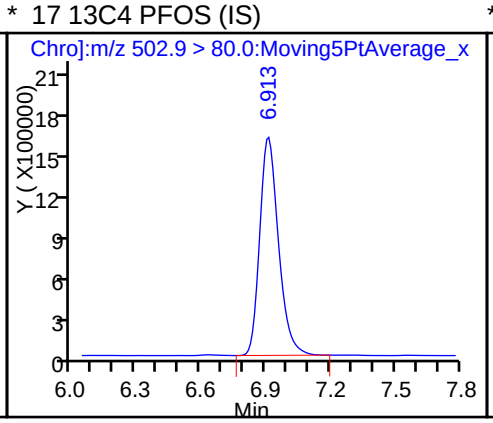
19 Perfluorooctane sulfonic acid



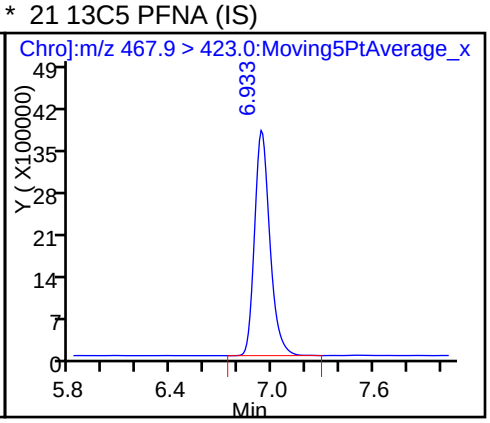
19 Perfluorooctane sulfonic acid



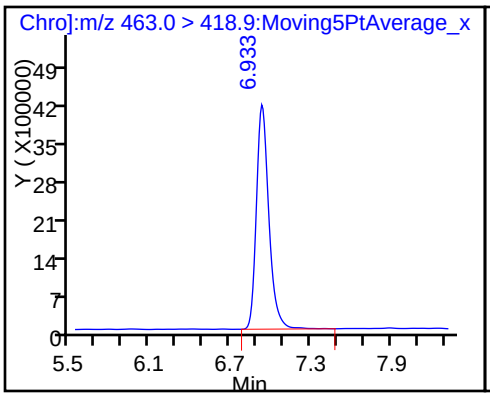
* 17 13C4 PFOS (IS)



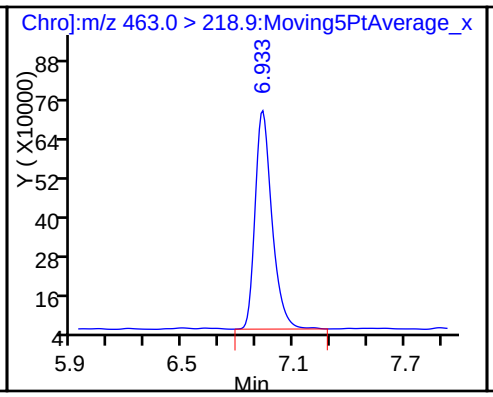
* 21 13C5 PFNA (IS)



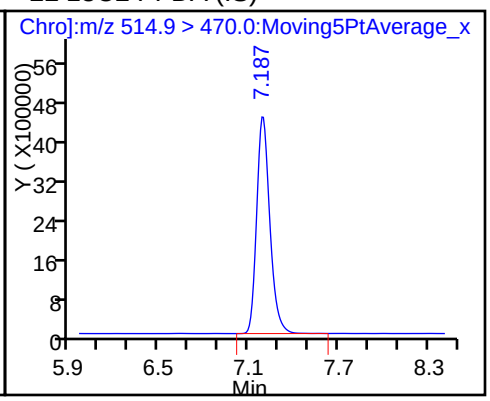
20 Perfluorononanoic acid



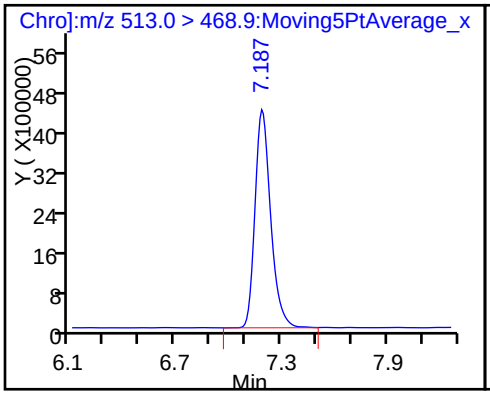
20 Perfluorononanoic acid



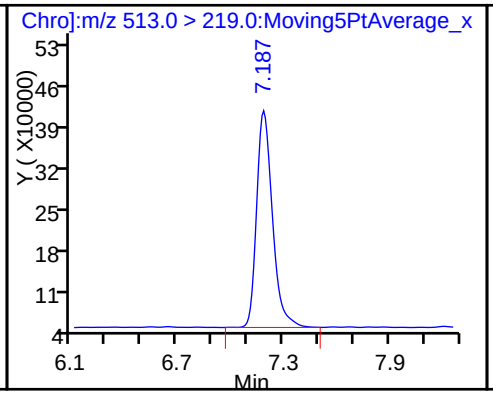
* 22 13C2 PFDA (IS)



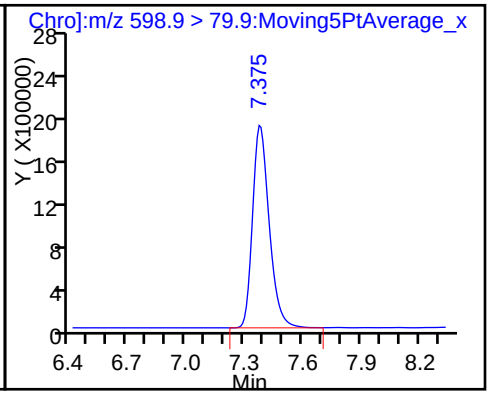
23 Perfluorodecanoic acid



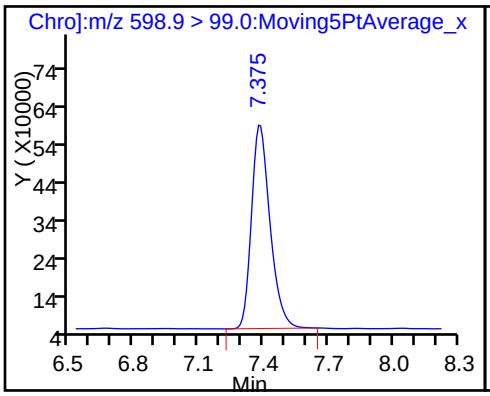
23 Perfluorodecanoic acid



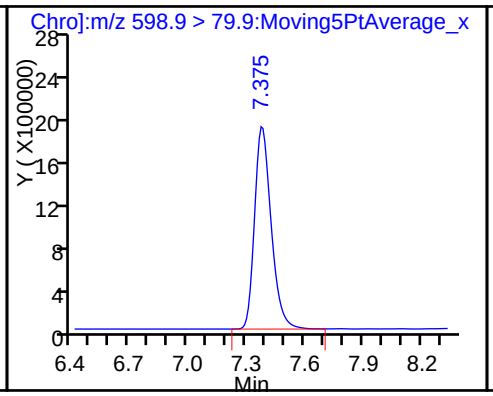
25 Perfluorodecane Sulfonate



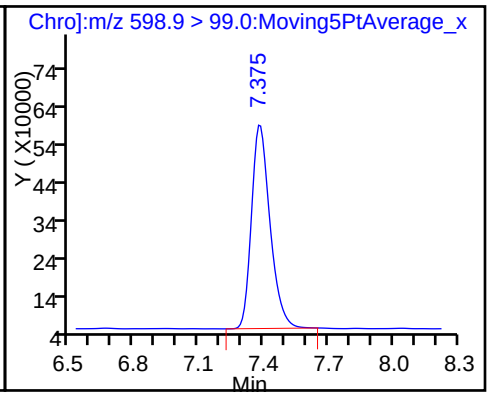
25 Perfluorodecane Sulfonate



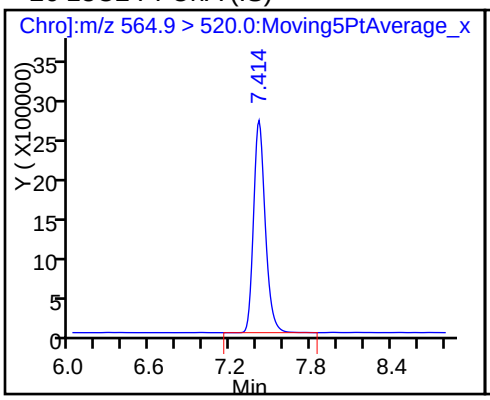
24 Perfluorodecane Sulfonic acid



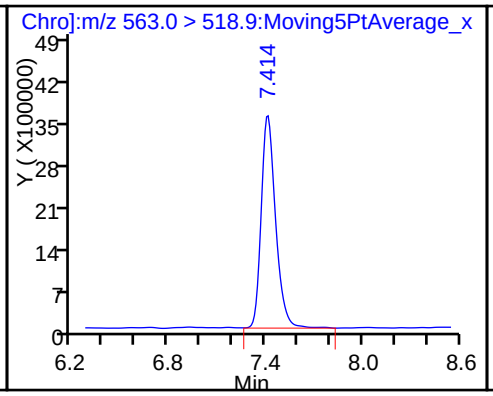
24 Perfluorodecane Sulfonic acid



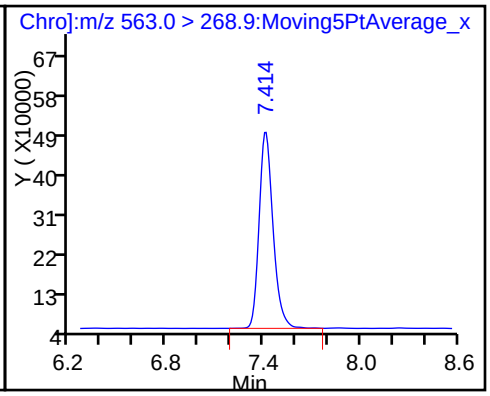
* 26 13C2 PFUnA (IS)



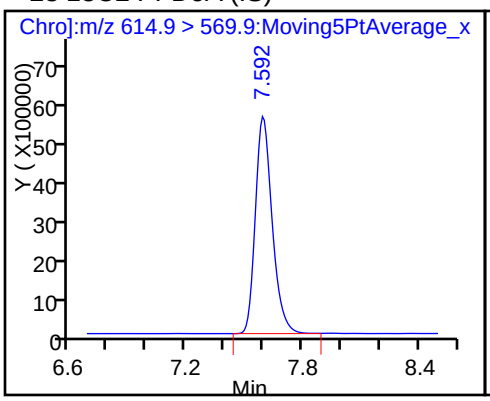
27 Perfluoroundecanoic acid



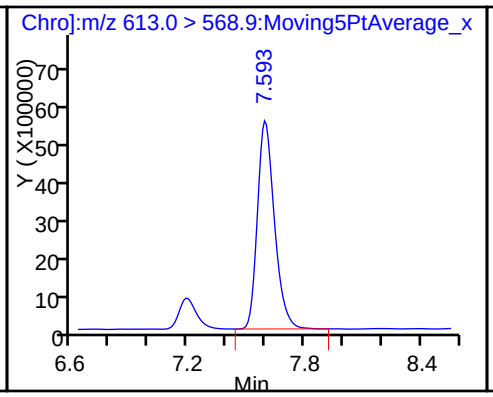
27 Perfluoroundecanoic acid



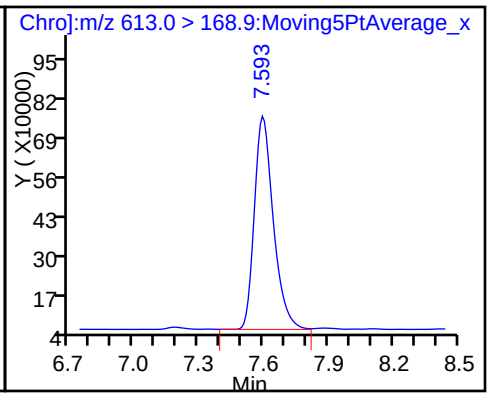
* 28 13C2 PFDoA (IS)



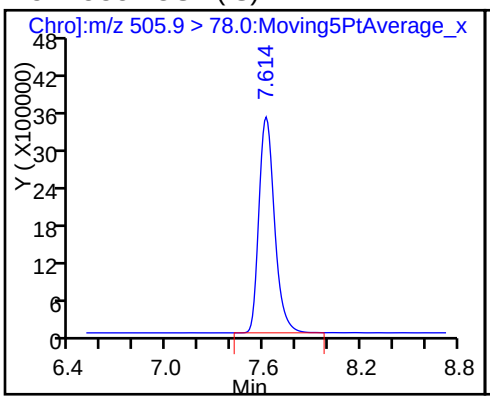
29 Perfluorododecanoic acid



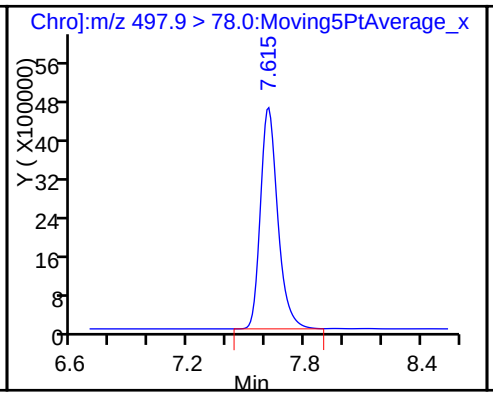
29 Perfluorododecanoic acid



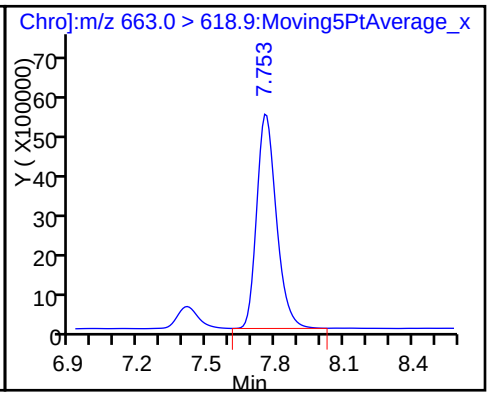
* 31 13C8 FOSA (IS)



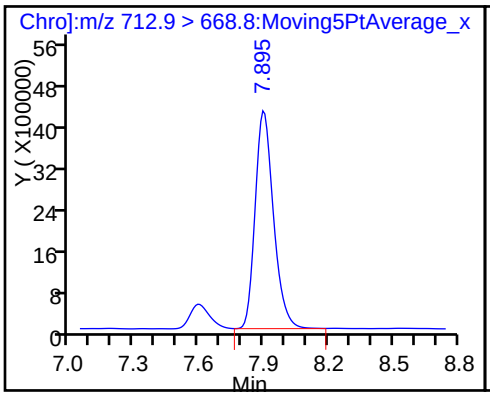
32 Perfluorooctane Sulfonamide



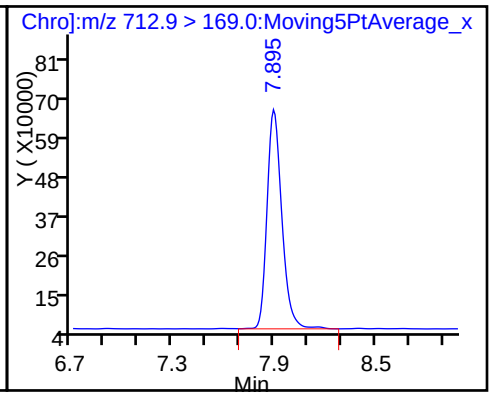
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Lab Sample ID: CCV 280-333083/9 Calibration Date: 07/08/2016 14:15

Instrument ID: LC_LCMS5 Calib Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calib End Date: 06/06/2016 16:28

Lab File ID: PC516G08014.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	Lin2		1.133		5.28	5.00	5.7	30.0
Perfluoropentanoic acid (PFPA)	Lin2		1.324		5.62	5.00	12.3	30.0
Perfluorobutane Sulfonate (PFBS)	Lin2		4.874		4.13	4.43	-6.6	30.0
Perfluorobutanesulfonic acid	Lin2		4.874		4.13	4.43	-6.6	30.0
Perfluorohexanoic acid (PFHxA)	Lin2		1.007		5.32	5.00	6.3	30.0
Perfluorohexane Sulfonate (PFHxS)	Lin2		3.917		4.74	4.73	0.3	30.0
Perfluorohexanesulfonic acid	Lin2		3.917		4.74	4.73	0.3	30.0
Perfluoroheptanoic acid (PFHpA)	Lin2		0.9658		5.54	5.00	10.7	30.0
Perfluoroheptane Sulfonate	Lin2		1.165		4.58	4.76	-3.7	30.0
Perfluoroheptanesulfonic Acid (PFHpS)	Lin2		1.165		4.58	4.76	-3.7	30.0
Perfluorooctanoic acid (PFOA)	Lin2		1.146		5.47	5.00	9.4	30.0
Perfluorooctanesulfonic acid (PFOS)	Lin2		1.196		4.84	4.78	1.3	30.0
Perfluorononanoic acid (PFNA)	Lin2		1.154		5.12	5.00	2.5	30.0
Perfluorodecanoic acid (PFDA)	Lin2		1.043		5.16	5.00	3.2	30.0
Perfluorodecane sulfonate (PFDS)	Lin2		1.164		4.52	4.83	-6.3	30.0
Perfluorodecane Sulfonic acid	Lin2		1.164		4.52	4.83	-6.3	30.0
Perfluoroundecanoic acid (PFUnA)	Lin2		1.437		5.05	5.00	0.9	30.0
Perfluorododecanoic acid (PFDoA)	Lin2		1.077		5.21	5.00	4.2	30.0
Perfluorooctane Sulfonamide (FOSA)	Lin2		1.150		5.29	5.00	5.8	30.0
Perfluorotridecanoic Acid (PFTriA)	Lin2		1.035		5.53	5.00	10.5	30.0
Perfluorotetradecanoic acid (PFTeA)	Lin2		0.7724		6.53	5.00	30.7*	30.0
13C8 PFOA	Lin2		0.9086		5.60	5.00	11.9	30.0
13C8 PFOS	Lin2		0.6715		5.24	4.78	9.5	30.0

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08014.d
Lims ID: CCV PFC L5
Client ID:
Sample Type: CCV
Inject. Date: 08-Jul-2016 14:15:04 ALS Bottle#: 0 Worklist Smp#: 9
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: CCV PFC L5, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 11-Jul-2016 11:14:47 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK031

First Level Reviewer: fiedlerh Date: 11-Jul-2016 10:50:26

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.219	4.219	0.0		31617065	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	4.229	4.229	0.0	1.002	17910853	5.28			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.242	5.242	0.0	0.898	13384010	5.62			
4 Perfluorobutane Sulfonate									R
298.9 > 79.9	5.355	5.355	0.0	0.854	5685218	4.13			R
298.9 > 98.9	5.364	5.355	0.009	0.855	1658417		3.43(1.80-3.35)		
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.355	5.355	0.0	0.854	5685218	4.13			
298.9 > 98.9	5.364	5.355	0.009	0.855	1658417		3.43(2.57-2.57)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.837	5.837	0.0		20219314	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.828	5.828	0.0	0.998	10181651	5.31			
313.0 > 118.6	5.828	5.828	0.0	0.998	266694		38.18(34.05-63.23)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.273	6.273	0.0	0.949	15696755	5.54			
363.0 > 168.9	6.273	6.273	0.0	0.949	3828766		4.10(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.272	6.272	0.0		2493612	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.272	6.272	0.0	1.000	4878049	4.74			R
398.9 > 98.9	6.272	6.272	0.0	1.000	1755939		2.78(1.30-2.41)		
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.272	6.272	0.0	1.000	4878049	4.74			
398.9 > 98.9	6.272	6.272	0.0	1.000	1755939		2.78(1.85-1.85)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.602	6.602	0.0	0.959	5130747	4.58			
449.0 > 98.9	6.602	6.602	0.0	0.959	1740962		2.95(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.602	6.602	0.0	0.959	5130747	4.58			
449.0 > 98.9	6.602	6.602	0.0	0.959	1740962		2.95(0.00-0.00)		
16 Perfluorooctanoic acid									
413.0 > 368.9	6.613	6.613	0.0	1.000	18634367	5.47			
413.0 > 169.0	6.613	6.613	0.0	1.000	5496384		3.39(2.86-5.31)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.612	6.612	0.0	1.000	14767061	5.60			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.612	6.612	0.0		32506817	10.0			
$ 18 13C8 PFOS									
506.9 > 80.0	6.884	6.884	0.0	1.000	2968815	5.24			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.885	6.885	0.0		8842422	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.885	6.885	0.0	1.000	5280567	4.84			R
498.9 > 98.9	6.885	6.885	0.0	1.000	2033374		2.60(1.31-2.43)		
20 Perfluorononanoic acid									
463.0 > 418.9	6.905	6.905	0.0	1.000	14326890	5.12			
463.0 > 218.9	6.905	6.905	0.0	1.000	2178580		6.58(5.59-10.38)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.905	6.905	0.0		24831049	10.0			
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.158	7.158	0.0		26404811	10.0			
23 Perfluorodecanoic acid									R
513.0 > 468.9	7.159	7.159	0.0	1.000	13775725	5.16			R
513.0 > 219.0	7.168	7.159	0.009	1.001	1367687		10.07(10.49-19.48)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.347	7.347	0.0	1.067	5194921	4.52			
598.9 > 99.0	7.347	7.347	0.0	1.067	1690508		3.07(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.347	7.347	0.0	1.067	5194921	4.52			
598.9 > 99.0	7.347	7.347	0.0	1.067	1690508		3.07(2.84-2.84)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.376	7.376	0.0		15803654	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.376	7.376	0.0	1.000	11358603	5.04			R
563.0 > 268.9	7.376	7.376	0.0	1.000	1535996		7.39(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.555	7.555	0.0		33440029	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.555	7.555	0.0	1.000	18004110	5.21			
613.0 > 168.9	7.555	7.555	0.0	1.000	2255259		7.98(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.576	7.576	0.0		24543830	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.577	7.577	0.0	1.000	14108651	5.29			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.715	7.715	0.0	1.021	17302569	5.53			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.857	7.857	0.0	1.040	12915220	6.53			
712.9 > 169.0	7.847	7.857	-0.010	1.039	1855235		6.96(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Reagents:

PFC-IS_00021	Amount Added:	20.00	Units: uL
PFC_Surr_00021	Amount Added:	10.00	Units: uL
PFC-LCS_00078	Amount Added:	10.00	Units: uL

Report Date: 11-Jul-2016 11:14:48 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08014.d

Injection Date: 08-Jul-2016 14:15:04 Instrument ID: LC_LCMS5

Lims ID: CCV PFC L5

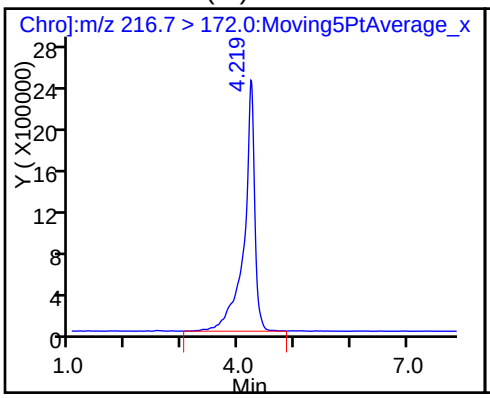
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 9

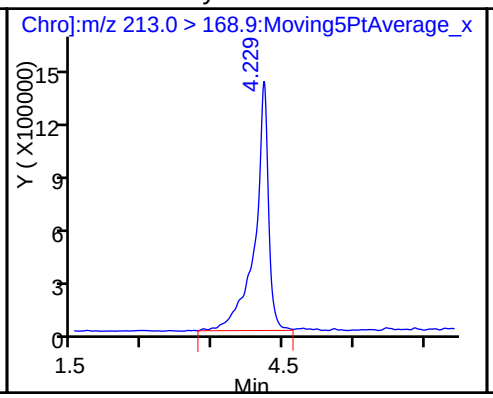
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

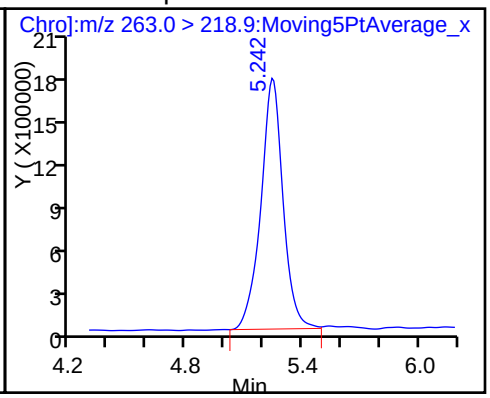
* 1 13C4 PFBA (IS)



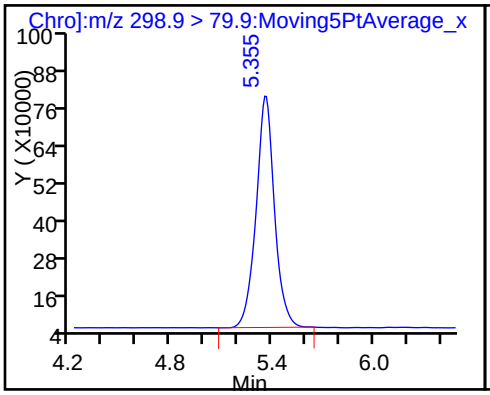
2 Perfluorobutyric acid



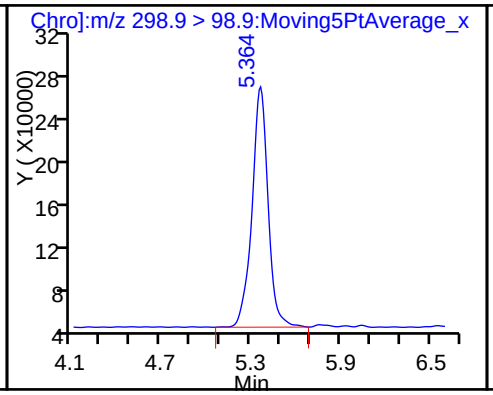
3 Perfluoropentanoic acid



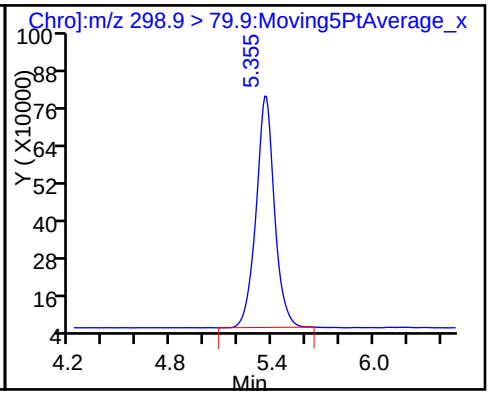
4 Perfluorobutane Sulfonate



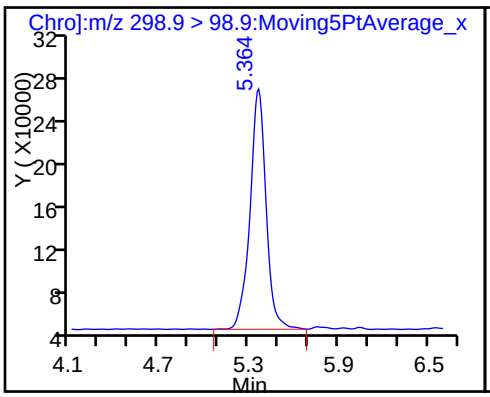
4 Perfluorobutane Sulfonate



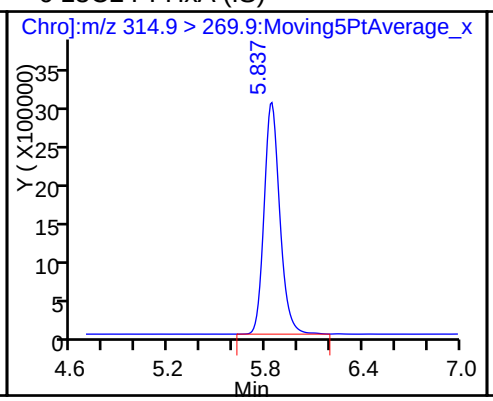
5 Perfluorobutanesulfonic acid



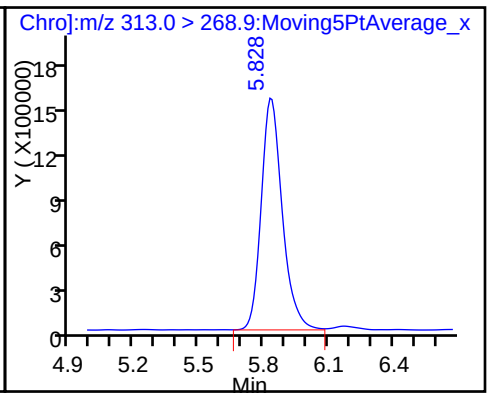
5 Perfluorobutanesulfonic acid



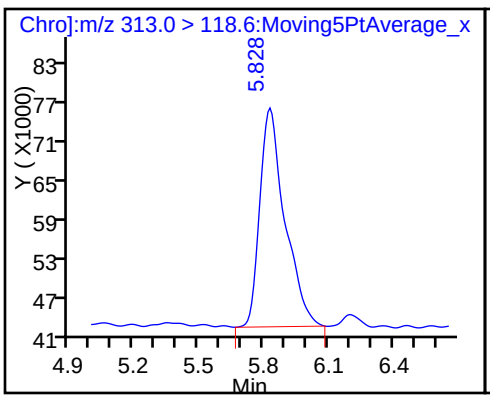
* 6 13C2 PFHxA (IS)



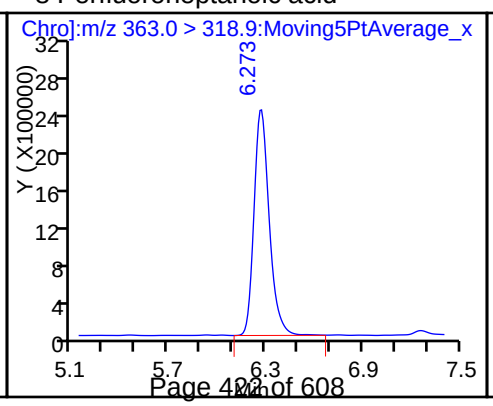
7 Perfluorohexanoic acid



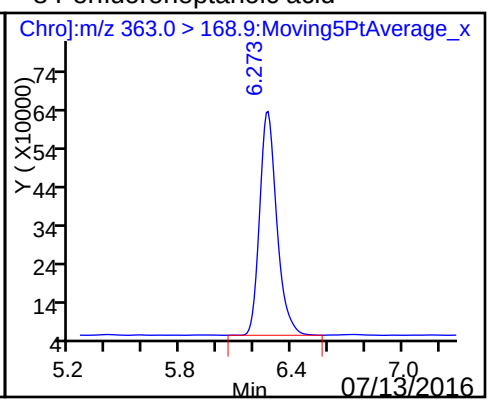
7 Perfluorohexanoic acid



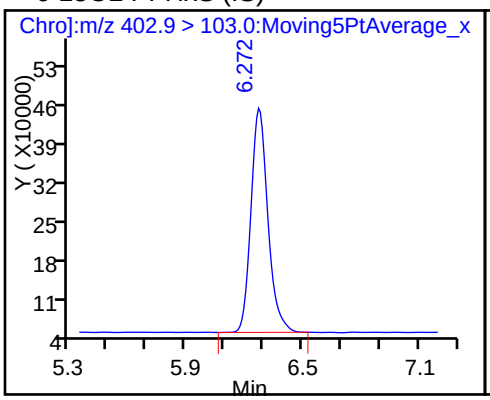
8 Perfluoroheptanoic acid



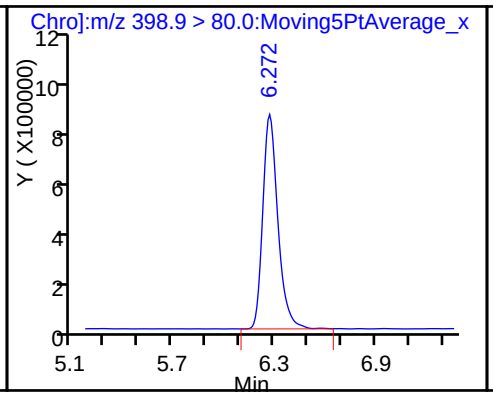
8 Perfluoroheptanoic acid



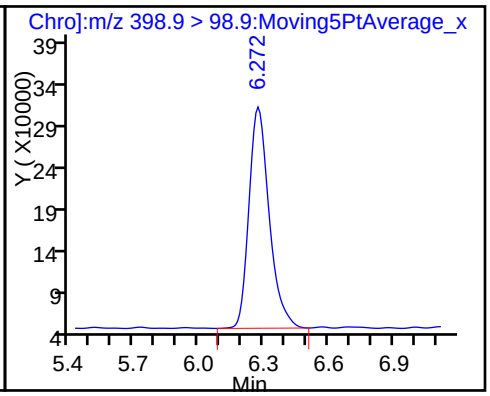
* 9 18O2 PFHxS (IS)



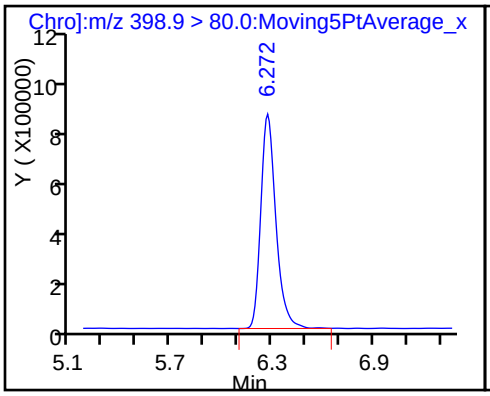
10 Perfluorohexane Sulfonate



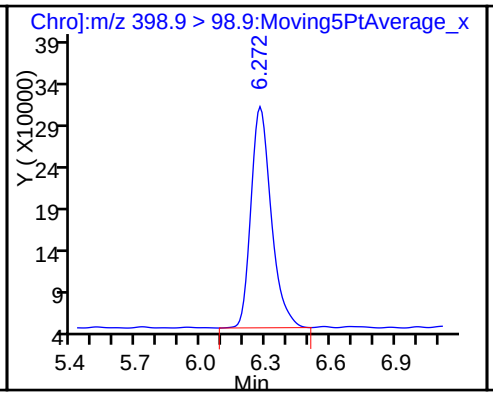
10 Perfluorohexane Sulfonate



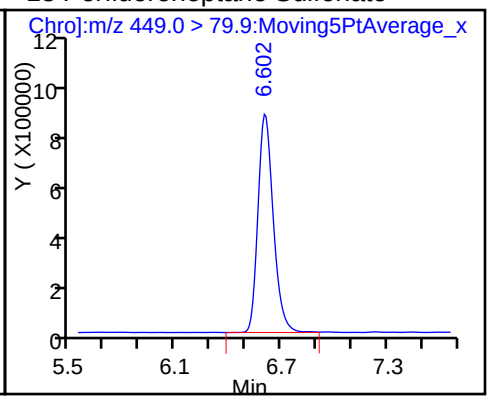
11 Perfluorohexanesulfonic acid



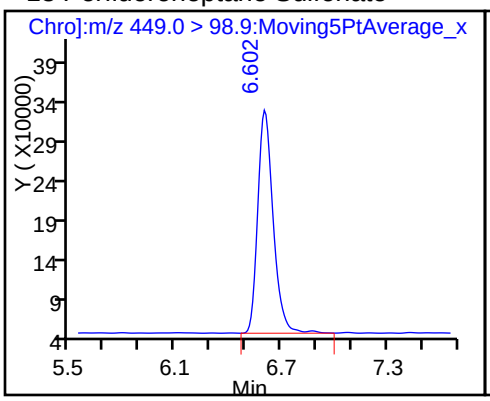
11 Perfluorohexanesulfonic acid



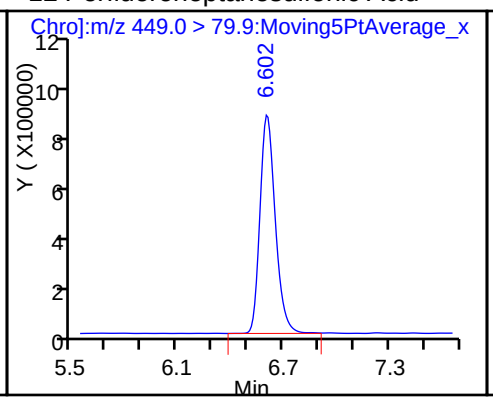
13 Perfluoroheptane Sulfonate



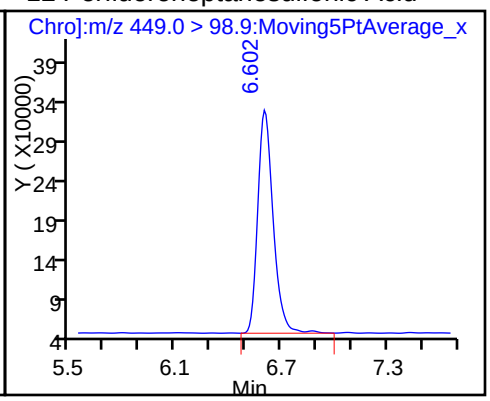
13 Perfluoroheptane Sulfonate



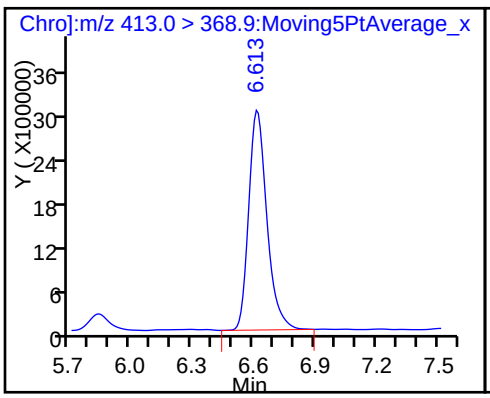
12 Perfluoroheptanesulfonic Acid



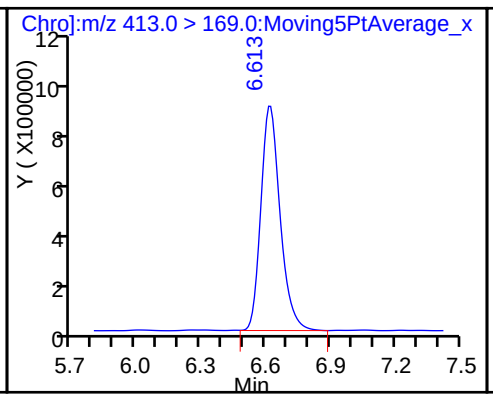
12 Perfluoroheptanesulfonic Acid



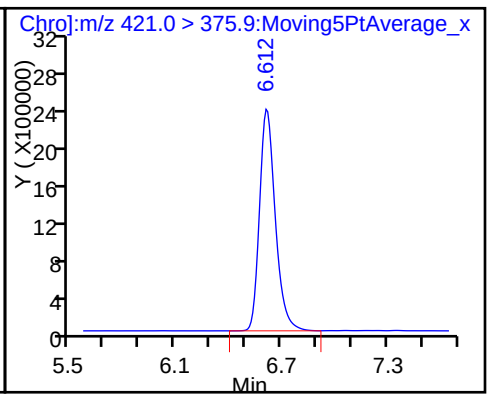
16 Perfluorooctanoic acid



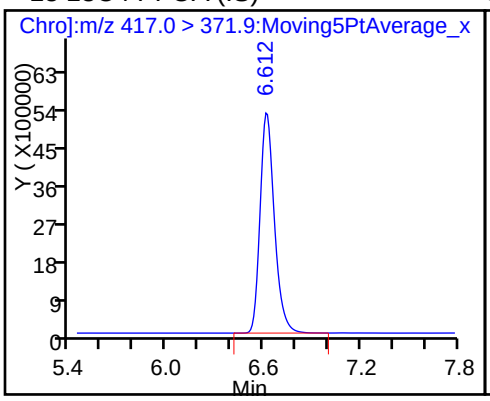
16 Perfluorooctanoic acid



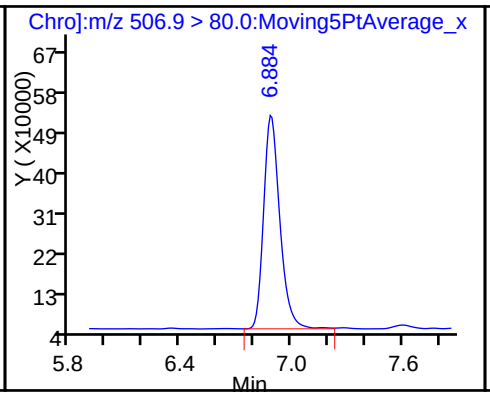
$ 14 13C8 PFOA



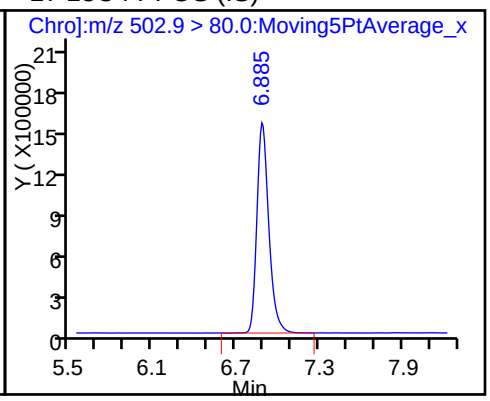
* 15 13C4 PFOA (IS)



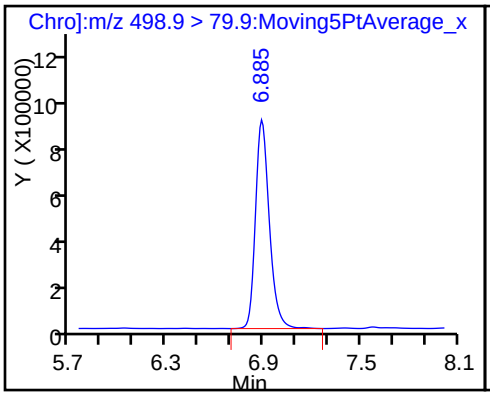
$ 18 13C8 PFOS



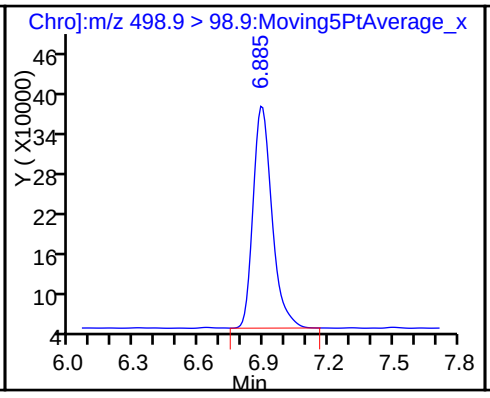
* 17 13C4 PFOS (IS)



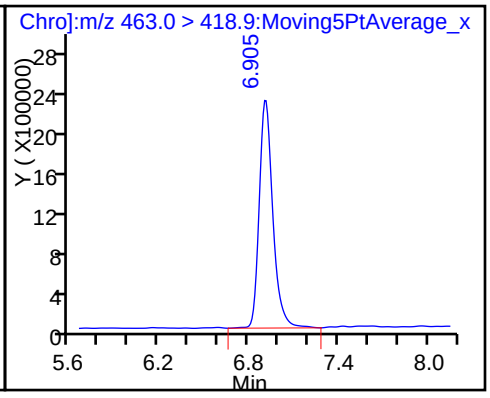
19 Perfluorooctane sulfonic acid



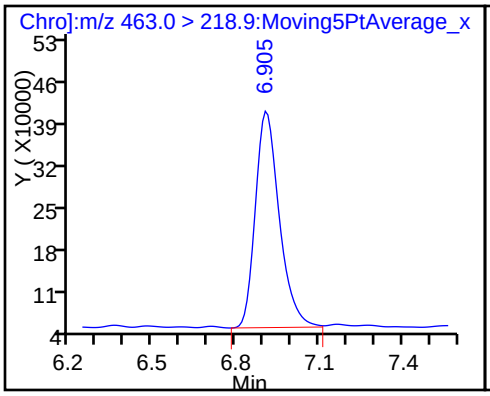
19 Perfluorooctane sulfonic acid



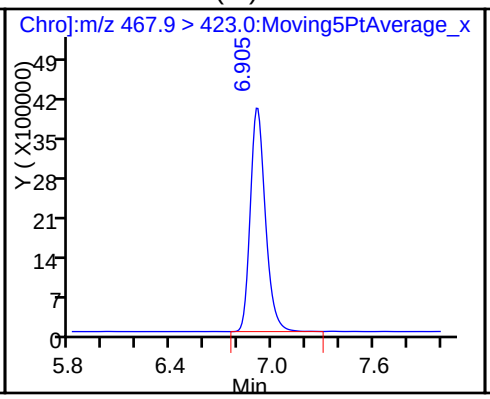
20 Perfluorononanoic acid



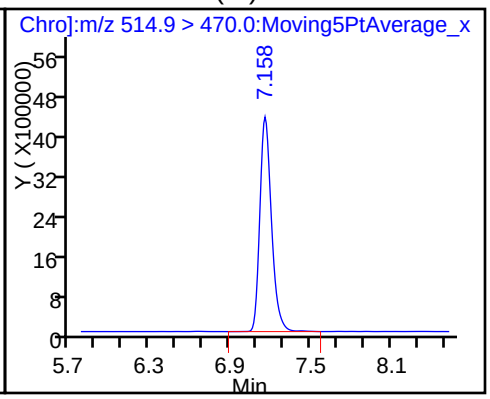
20 Perfluorononanoic acid



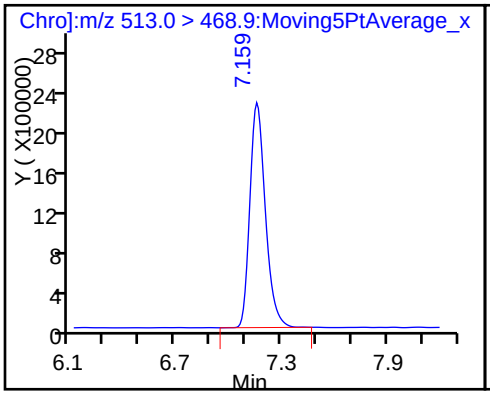
* 21 13C5 PFNA (IS)



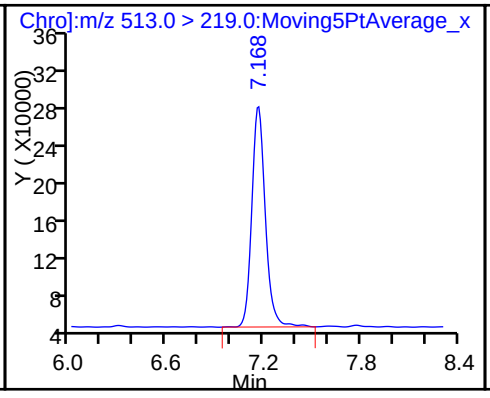
* 22 13C2 PFDA (IS)



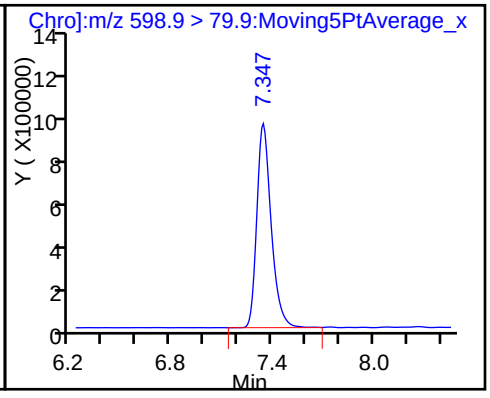
23 Perfluorodecanoic acid



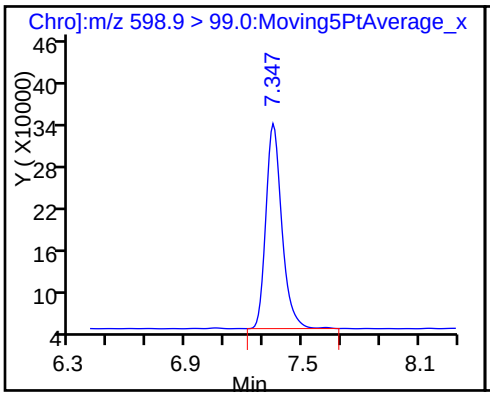
23 Perfluorodecanoic acid



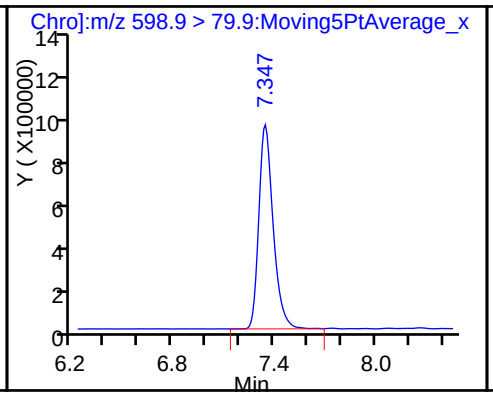
25 Perfluorodecane Sulfonate



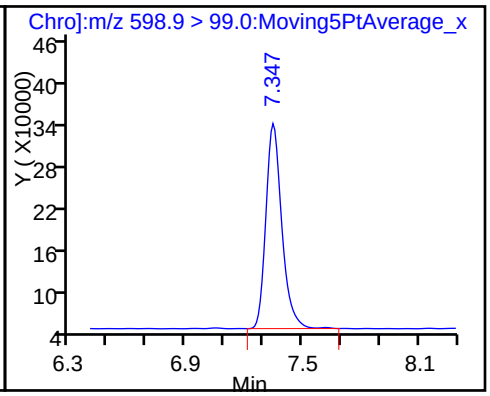
25 Perfluorodecane Sulfonate



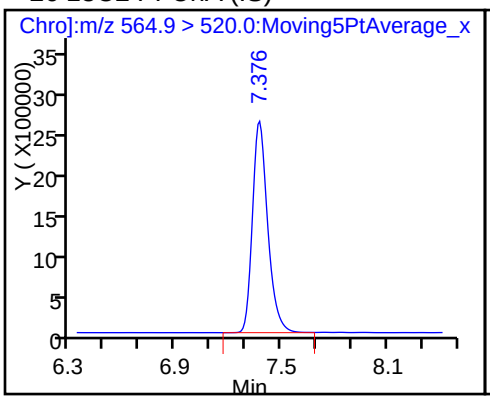
24 Perfluorodecane Sulfonic acid



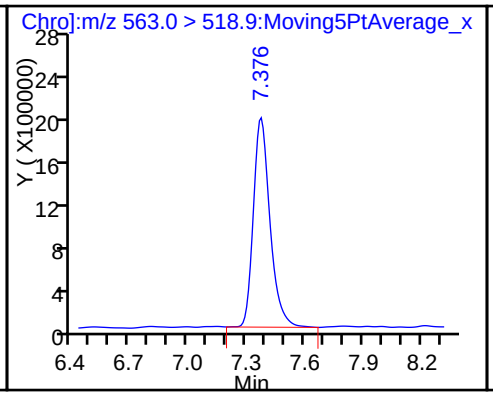
24 Perfluorodecane Sulfonic acid



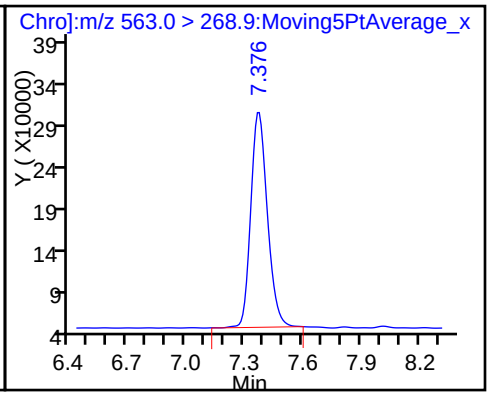
* 26 13C2 PFUnA (IS)



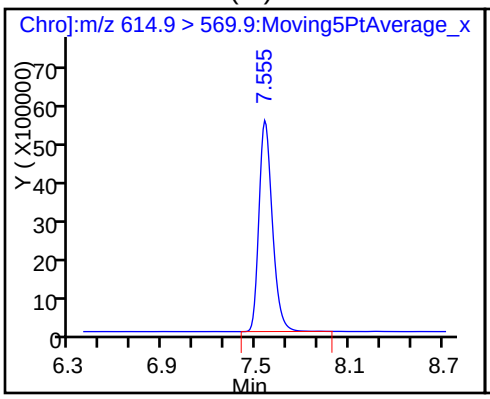
27 Perfluoroundecanoic acid



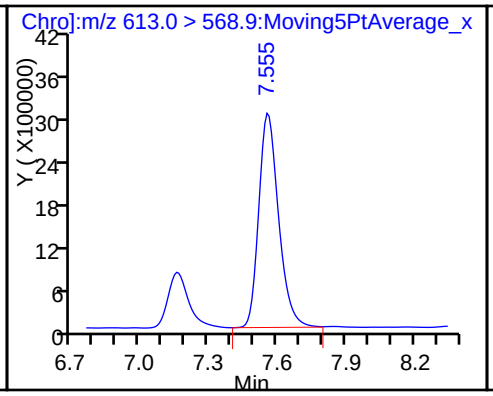
27 Perfluoroundecanoic acid



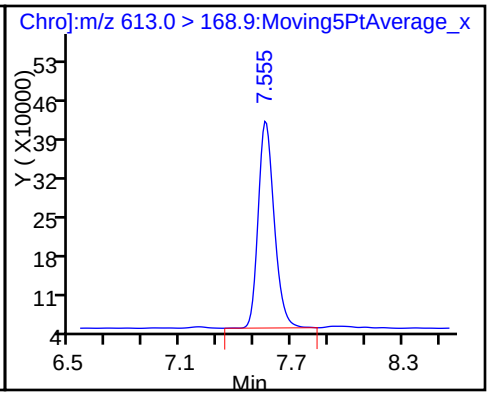
* 28 13C2 PFDoA (IS)



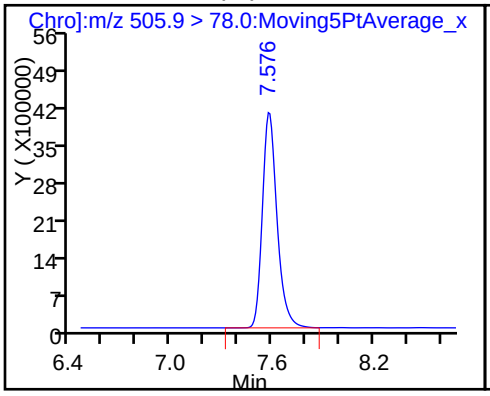
29 Perfluorododecanoic acid



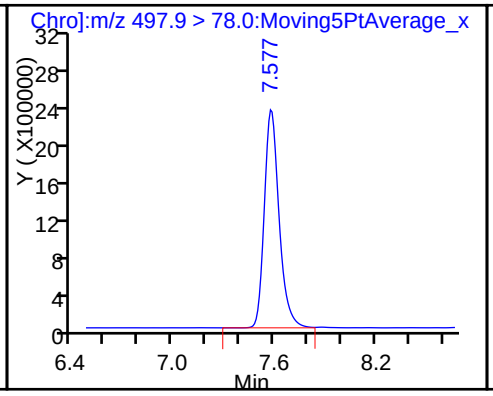
29 Perfluorododecanoic acid



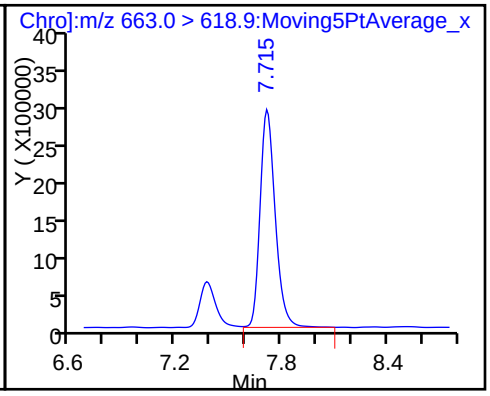
* 31 13C8 FOSA (IS)



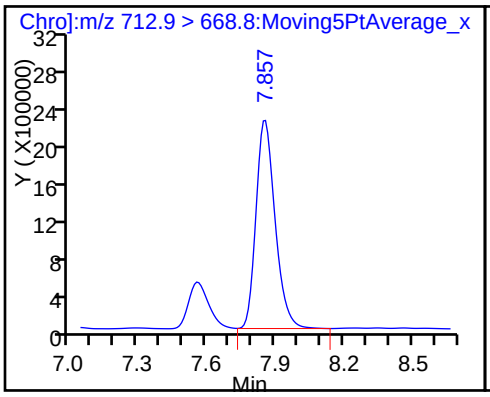
32 Perfluorooctane Sulfonamide



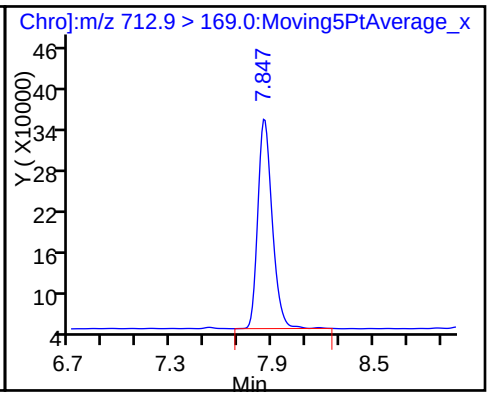
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Lab Sample ID: CCV 280-333083/20 Calibration Date: 07/08/2016 16:30

Instrument ID: LC_LCMS5 Calib Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calib End Date: 06/06/2016 16:28

Lab File ID: PC516G08025.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	Lin2		1.087		10.1	10.0	1.3	30.0
Perfluoropentanoic acid (PFPA)	Lin2		1.235		10.5	10.0	5.0	30.0
Perfluorobutane Sulfonate (PFBS)	Lin2		4.435		7.52	8.85	-15.1	30.0
Perfluorobutanesulfonic acid	Lin2		4.435		7.52	8.85	-15.1	30.0
Perfluorohexanoic acid (PFHxA)	Lin2		0.9116		9.64	10.0	-3.6	30.0
Perfluoroheptanoic acid (PFHpA)	Lin2		0.9043		10.4	10.0	4.0	30.0
Perfluorohexane Sulfonate (PFHxS)	Lin2		3.869		9.45	9.45	-0.0	30.0
Perfluorohexanesulfonic acid	Lin2		3.869		9.45	9.45	-0.0	30.0
Perfluoroheptane Sulfonate	Lin2		1.135		8.92	9.52	-6.3	30.0
Perfluoroheptanesulfonic Acid (PFHpS)	Lin2		1.135		8.92	9.52	-6.3	30.0
Perfluorooctanoic acid (PFOA)	Lin2		1.080		10.4	10.0	3.7	30.0
Perfluorooctanesulfonic acid (PFOS)	Lin2		1.146		9.34	9.55	-2.2	30.0
Perfluorononanoic acid (PFNA)	Lin2		1.102		9.82	10.0	-1.8	30.0
Perfluorodecanoic acid (PFDA)	Lin2		0.9610		9.54	10.0	-4.6	30.0
Perfluorodecane sulfonate (PFDS)	Lin2		1.159		9.04	9.65	-6.4	30.0
Perfluorodecane Sulfonic acid	Lin2		1.159		9.04	9.65	-6.4	30.0
Perfluoroundecanoic acid (PFUnA)	Lin2		1.383		9.75	10.0	-2.5	30.0
Perfluorododecanoic acid (PFDoA)	Lin2		0.995		9.69	10.0	-3.1	30.0
Perfluorooctane Sulfonamide (FOSA)	Lin2		1.096		10.1	10.0	0.9	30.0
Perfluorotridecanoic Acid (PFTriA)	Lin2		0.9636		10.4	10.0	3.6	30.0
Perfluorotetradecanoic acid (PFTeA)	Lin2		0.7173		12.1	10.0	21.4	30.0
13C8 PFOA	Lin2		0.8608		10.7	10.0	6.5	30.0
13C8 PFOS	Lin2		0.6533		10.2	9.56	6.9	30.0

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08025.d
Lims ID: CCV PFC L6
Client ID:
Sample Type: CCV
Inject. Date: 08-Jul-2016 16:30:27 ALS Bottle#: 0 Worklist Smp#: 20
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: CCV PFC L6, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 11-Jul-2016 11:14:20 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK031

First Level Reviewer: fiedlerh Date: 11-Jul-2016 11:00:40

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.266	4.266	0.0		31648374	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	4.266	4.266	0.0	1.000	34391637	10.1			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.261	5.261	0.0	0.900	25892731	10.5			
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.374	5.374	0.0	0.856	10928823	7.52			
298.9 > 98.9	5.383	5.374	0.009	0.857	3333891		3.28(1.80-3.35)		
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.374	5.374	0.0	0.856	10928823	7.52			
298.9 > 98.9	5.383	5.374	0.009	0.857	3333891		3.28(2.57-2.57)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.847	5.847	0.0		20968350	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.847	5.847	0.0	1.000	19113935	9.64			
313.0 > 118.6	5.847	5.847	0.0	1.000	649430		29.43(34.05-63.23)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.282	6.282	0.0	0.947	28841008	10.4			
363.0 > 168.9	6.282	6.282	0.0	0.947	7587222		3.80(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.282	6.282	0.0		2633842	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.282	6.282	0.0	1.000	10179632	9.45			R
398.9 > 98.9	6.282	6.282	0.0	1.000	3202915		3.18(1.30-2.41)		
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.282	6.282	0.0	1.000	10179632	9.45			
398.9 > 98.9	6.282	6.282	0.0	1.000	3202915		3.18(1.85-1.85)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.621	6.621	0.0	0.958	10427465	8.92			
449.0 > 98.9	6.621	6.621	0.0	0.958	3332416		3.13(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.621	6.621	0.0	0.958	10427465	8.92			
449.0 > 98.9	6.621	6.621	0.0	0.958	3332416		3.13(0.00-0.00)		
16 Perfluorooctanoic acid									
413.0 > 368.9	6.632	6.632	0.0	1.000	34438522	10.4			
413.0 > 169.0	6.632	6.632	0.0	1.000	10580262		3.25(2.86-5.31)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.631	6.631	0.0	1.000	27454333	10.6			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.631	6.631	0.0		31894478	10.0			
$ 18 13C8 PFOS									
506.9 > 80.0	6.903	6.903	0.0	0.999	6024307	10.2			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.913	6.913	0.0		9222060	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.904	6.904	0.0	0.999	10555506	9.34			R
498.9 > 98.9	6.914	6.904	0.010	1.000	3994667		2.64(1.31-2.43)		
20 Perfluorononanoic acid									
463.0 > 418.9	6.933	6.933	0.0	1.000	26021313	9.82			
463.0 > 218.9	6.933	6.933	0.0	1.000	4103895		6.34(5.59-10.38)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.933	6.933	0.0		23614958	10.0			
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.177	7.177	0.0		27775691	10.0			
23 Perfluorodecanoic acid									
513.0 > 468.9	7.187	7.187	0.0	1.001	26691533	9.54			
513.0 > 219.0	7.178	7.187	-0.009	1.000	2432918		10.97(10.49-19.48)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.375	7.375	0.0	1.067	10785401	9.04			
598.9 > 99.0	7.375	7.375	0.0	1.067	3265370		3.30(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.375	7.375	0.0	1.067	10785401	9.04			
598.9 > 99.0	7.375	7.375	0.0	1.067	3265370		3.30(2.84-2.84)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.395	7.395	0.0		16511646	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.395	7.395	0.0	1.000	22830569	9.75			R
563.0 > 268.9	7.395	7.395	0.0	1.000	2830597		8.07(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.583	7.583	0.0		34961300	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.583	7.583	0.0	1.000	34799913	9.69			
613.0 > 168.9	7.583	7.583	0.0	1.000	4569104		7.62(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.605	7.605	0.0		25818362	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.605	7.605	0.0	1.000	28288630	10.1			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.744	7.744	0.0	1.021	33687871	10.4			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.876	7.876	0.0	1.039	25079304	12.1			
712.9 > 169.0	7.876	7.876	0.0	1.039	3815317		6.57(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Reagents:

PFC-LCS_00078	Amount Added: 20.00	Units: uL
PFC_Surr_00021	Amount Added: 20.00	Units: uL
PFC-IS_00021	Amount Added: 20.00	Units: uL

Report Date: 11-Jul-2016 11:14:20 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08025.d

Injection Date: 08-Jul-2016 16:30:27 Instrument ID: LC_LCMS5

Lims ID: CCV PFC L6

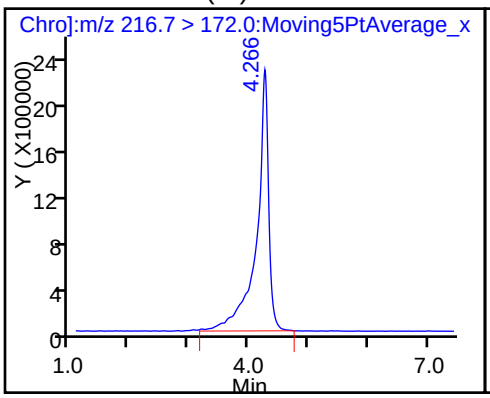
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 20

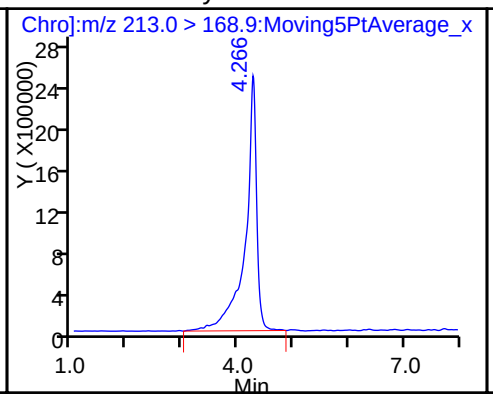
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

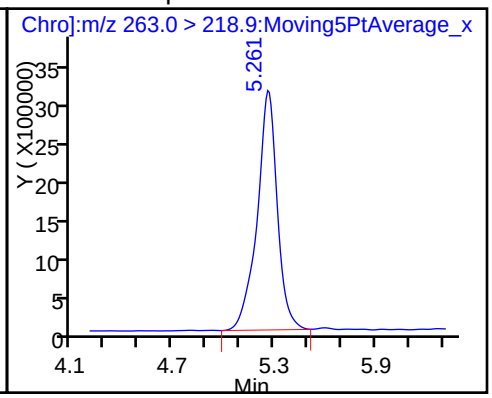
* 1 13C4 PFBA (IS)



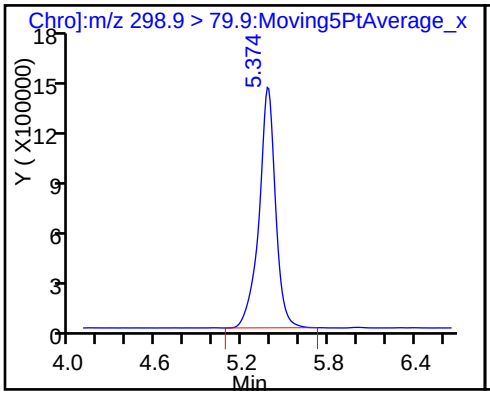
2 Perfluorobutyric acid



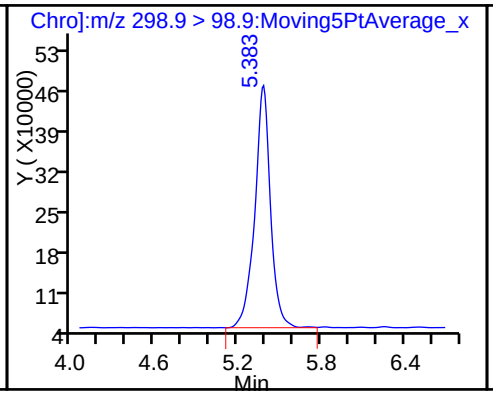
3 Perfluoropentanoic acid



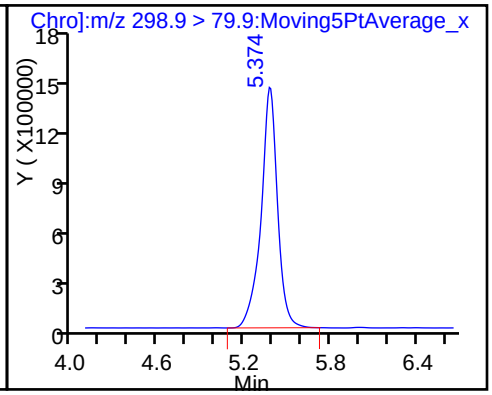
4 Perfluorobutane Sulfonate



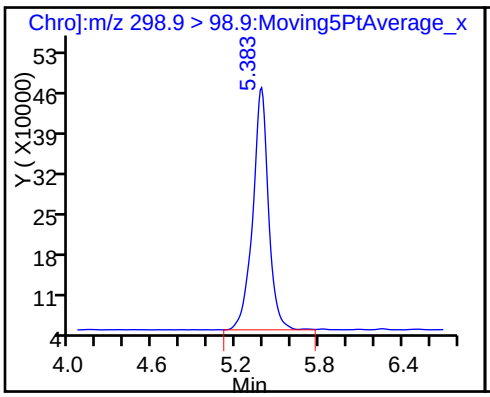
4 Perfluorobutane Sulfonate



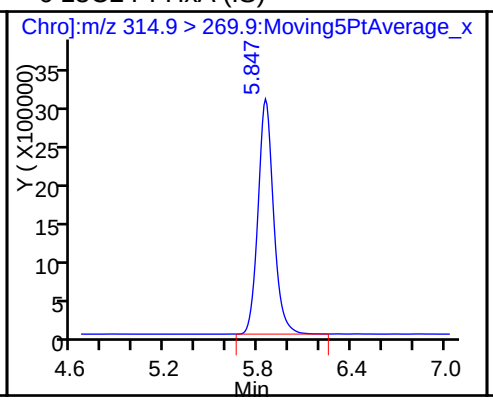
5 Perfluorobutanesulfonic acid



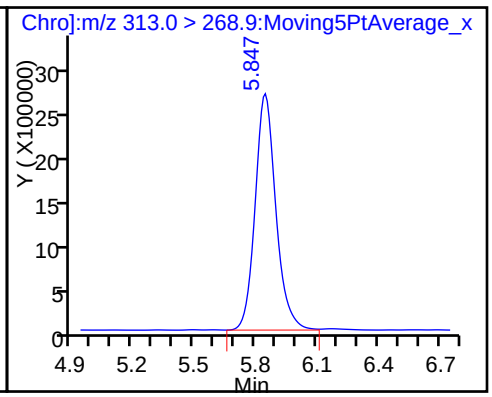
5 Perfluorobutanesulfonic acid



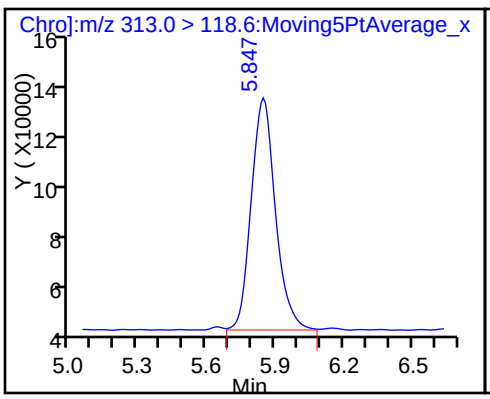
* 6 13C2 PFHxA (IS)



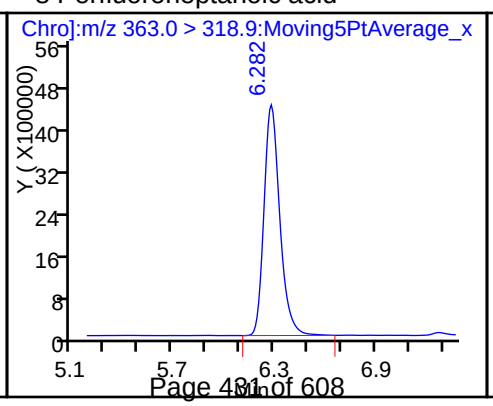
7 Perfluorohexanoic acid



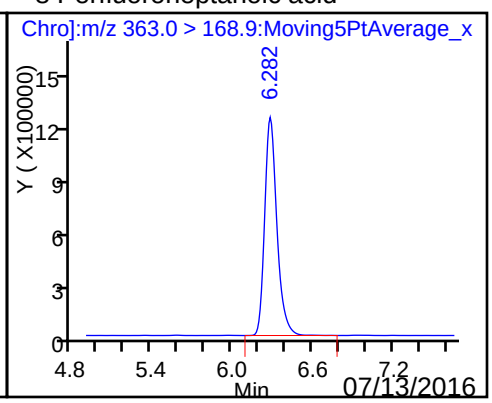
7 Perfluorohexanoic acid



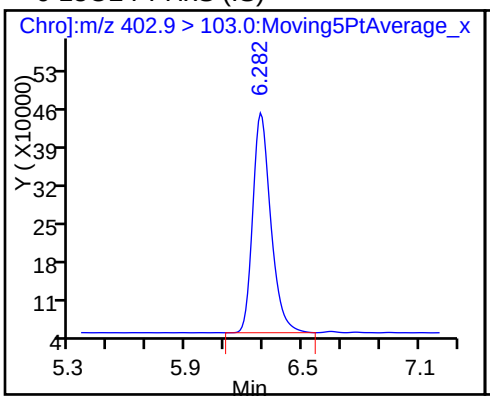
8 Perfluoroheptanoic acid



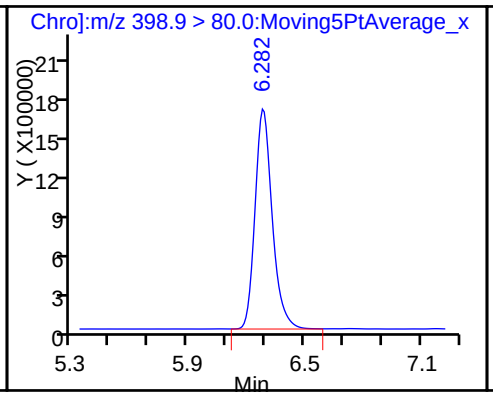
8 Perfluoroheptanoic acid



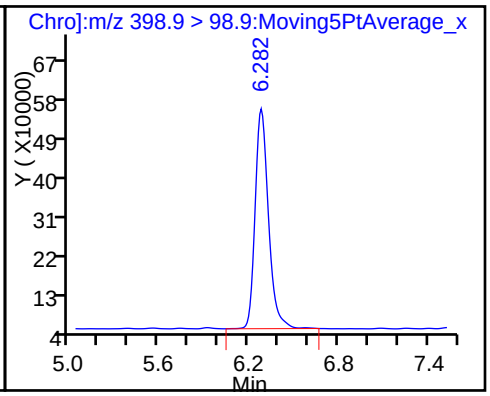
* 9 18O2 PFHxS (IS)



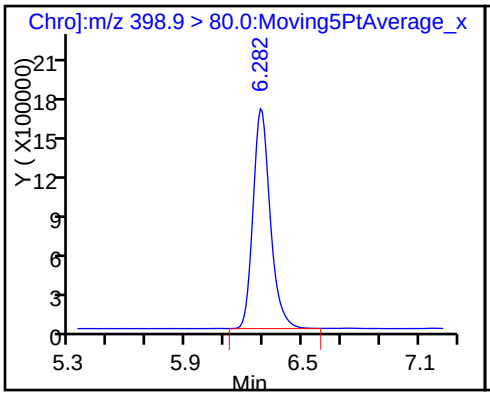
10 Perfluorohexane Sulfonate



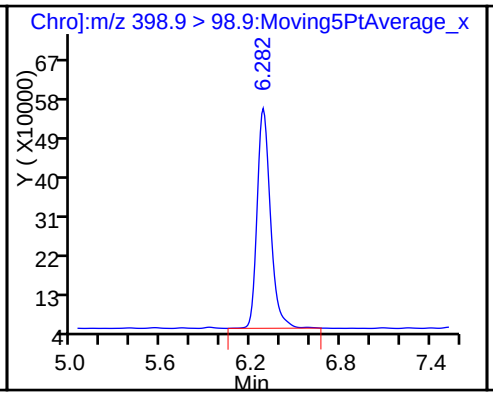
10 Perfluorohexane Sulfonate



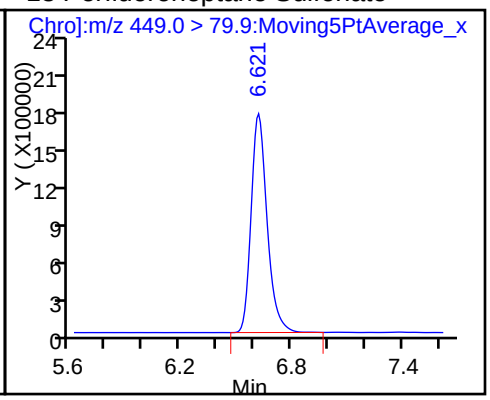
11 Perfluorohexanesulfonic acid



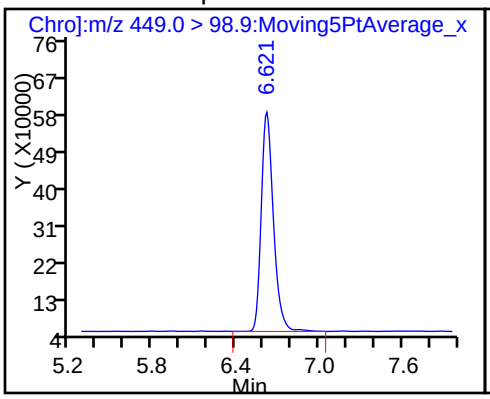
11 Perfluorohexanesulfonic acid



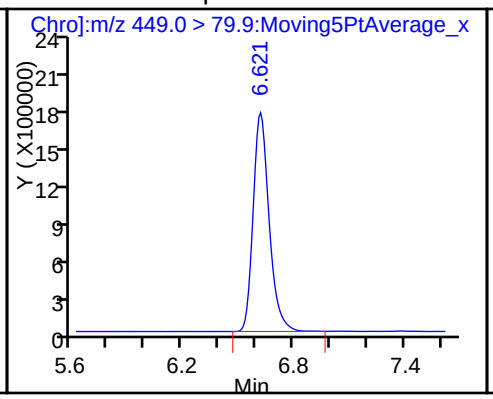
13 Perfluoroheptane Sulfonate



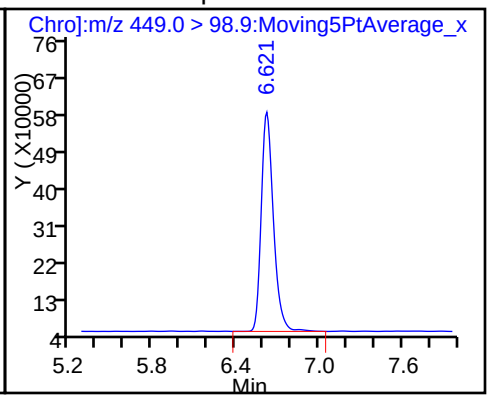
13 Perfluoroheptane Sulfonate



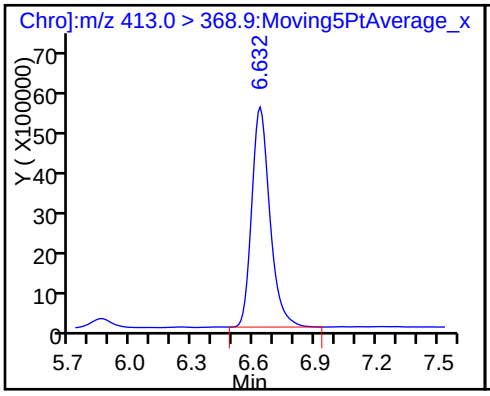
12 Perfluoroheptanesulfonic Acid



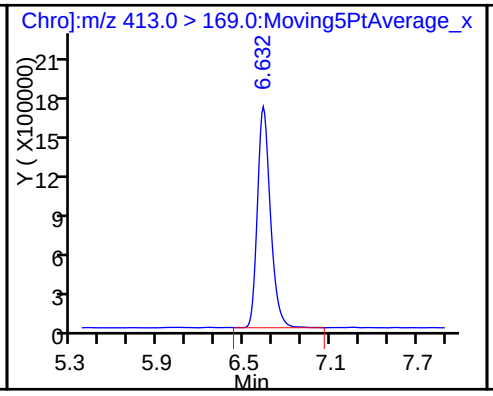
12 Perfluoroheptanesulfonic Acid



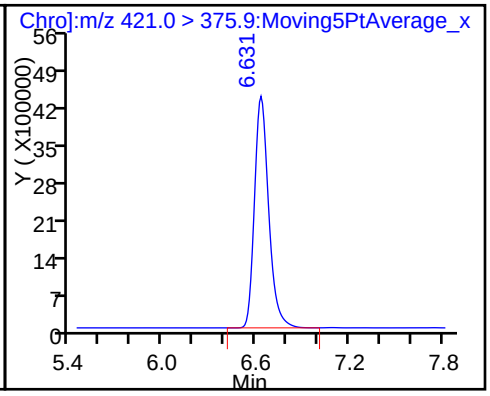
16 Perfluorooctanoic acid



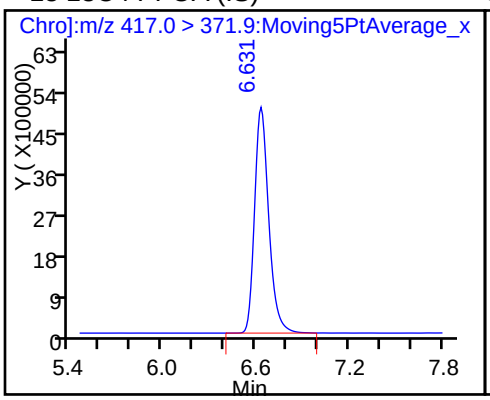
16 Perfluorooctanoic acid



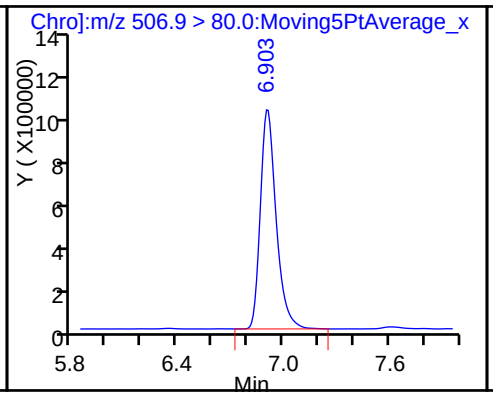
$ 14 13C8 PFOA



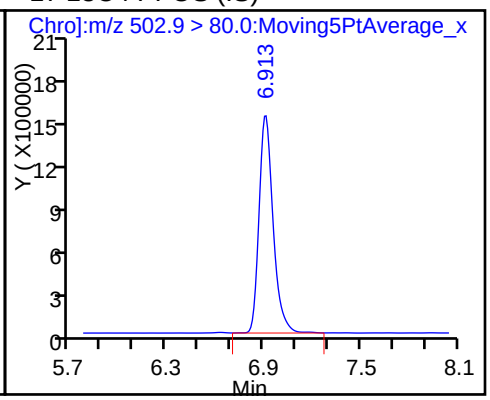
* 15 13C4 PFOA (IS)



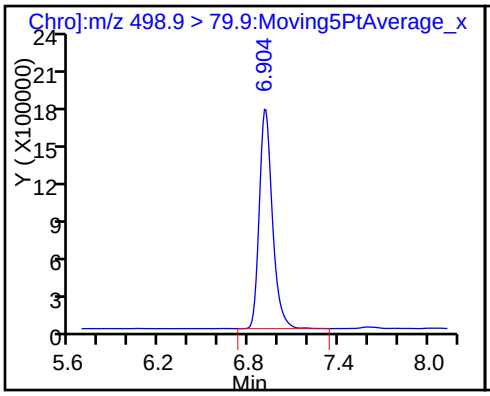
$ 18 13C8 PFOS



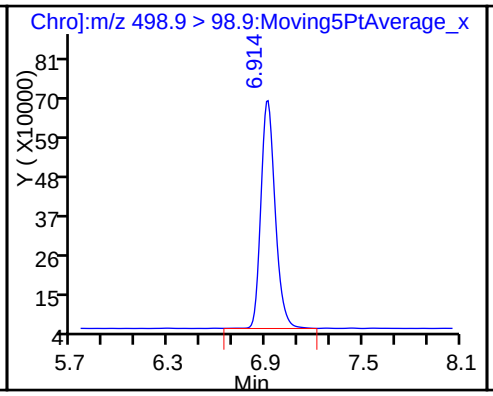
* 17 13C4 PFOS (IS)



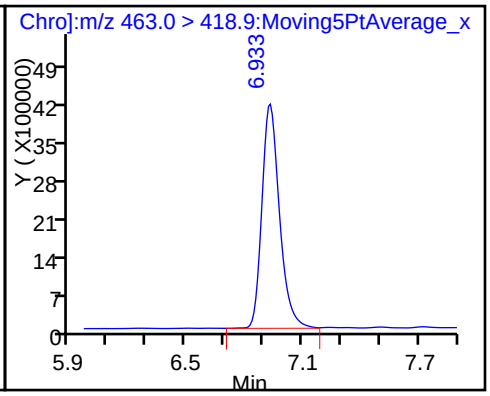
19 Perfluorooctane sulfonic acid



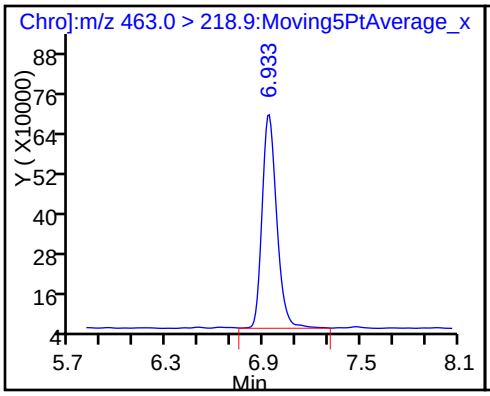
19 Perfluorooctane sulfonic acid



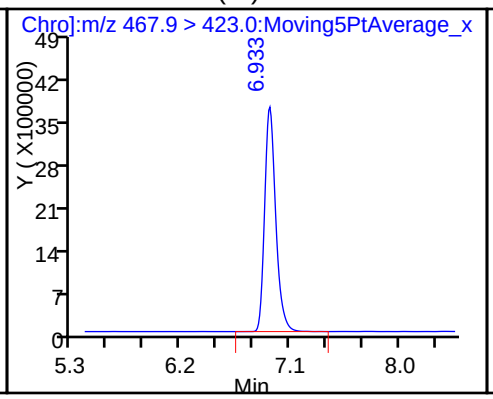
20 Perfluorononanoic acid



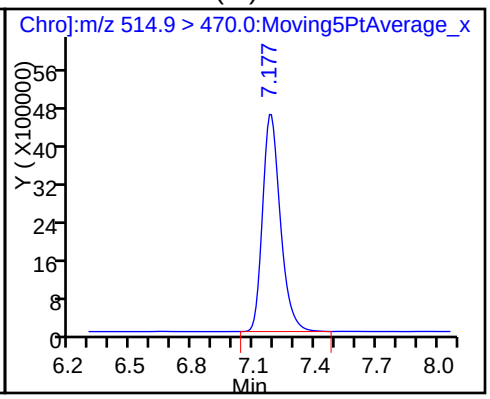
20 Perfluorononanoic acid



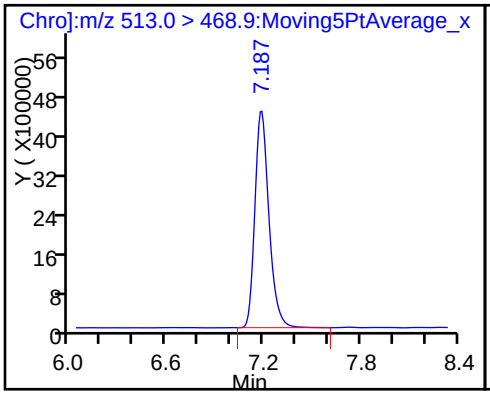
* 21 13C5 PFNA (IS)



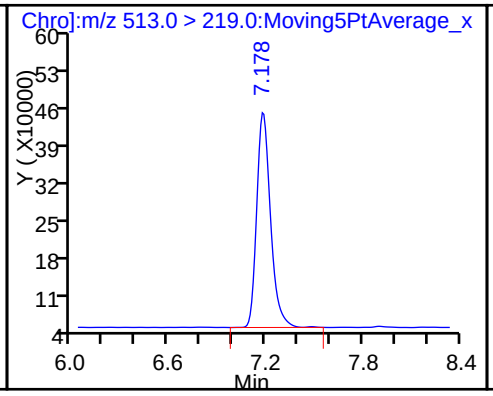
* 22 13C2 PFDA (IS)



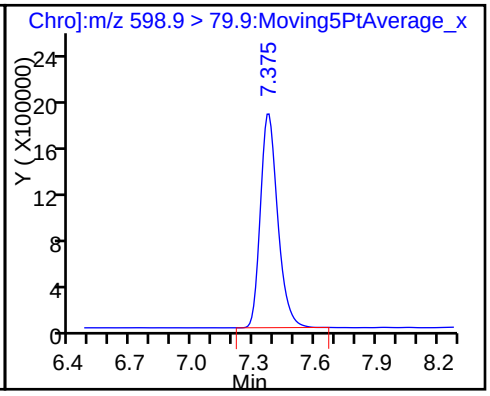
23 Perfluorodecanoic acid



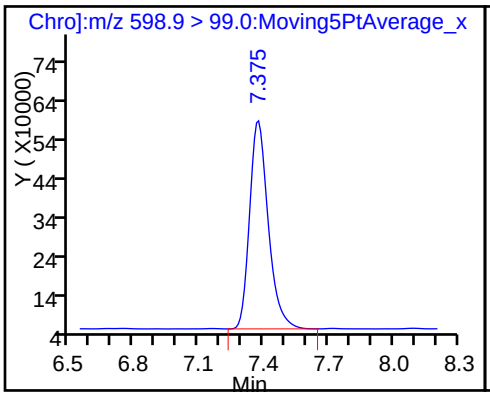
23 Perfluorodecanoic acid



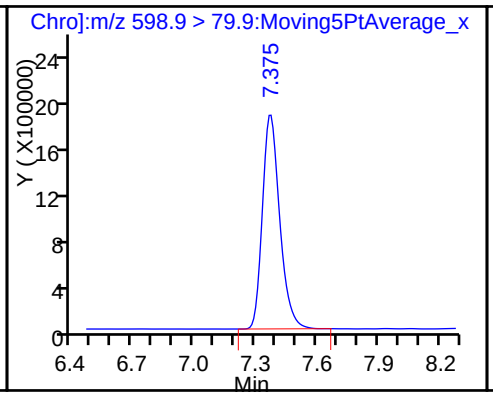
25 Perfluorodecane Sulfonate



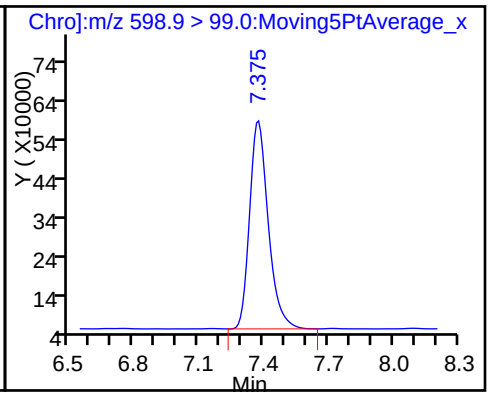
25 Perfluorodecane Sulfonate



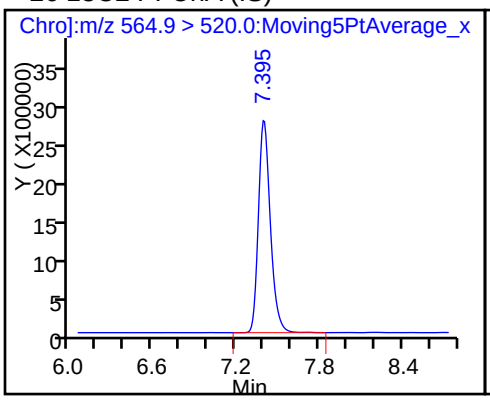
24 Perfluorodecane Sulfonic acid



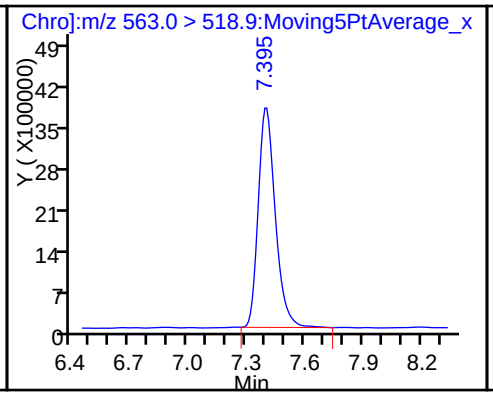
24 Perfluorodecane Sulfonic acid



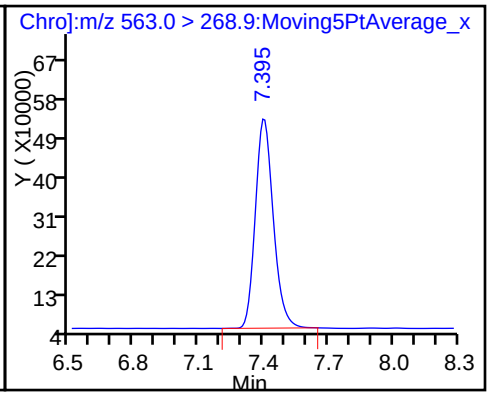
* 26 13C2 PFUnA (IS)



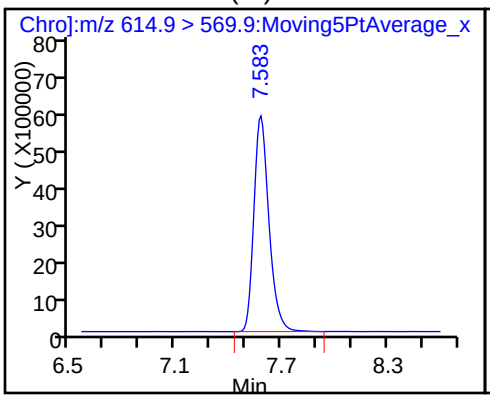
27 Perfluoroundecanoic acid



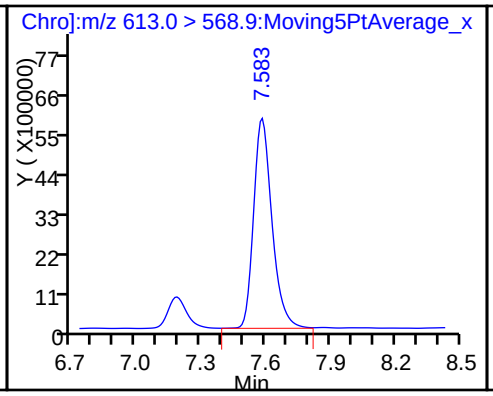
27 Perfluoroundecanoic acid



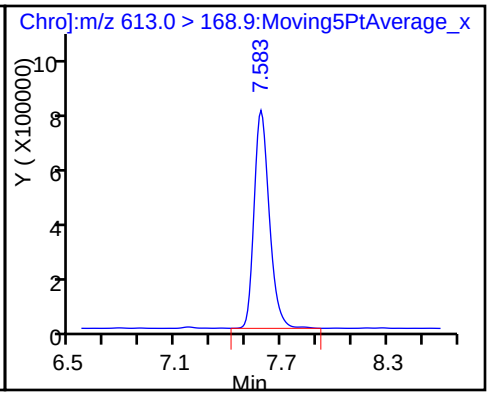
* 28 13C2 PFDoA (IS)



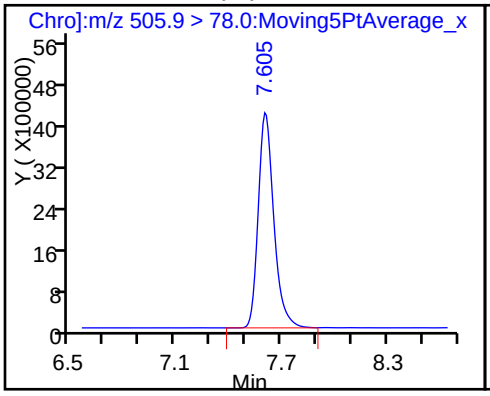
29 Perfluorododecanoic acid



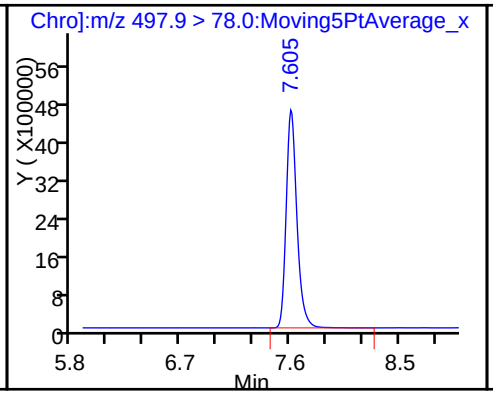
29 Perfluorododecanoic acid



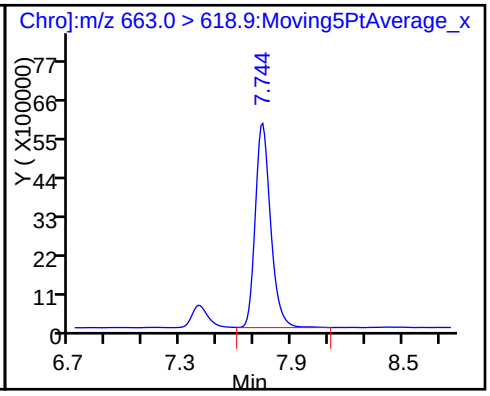
* 31 13C8 FOSA (IS)



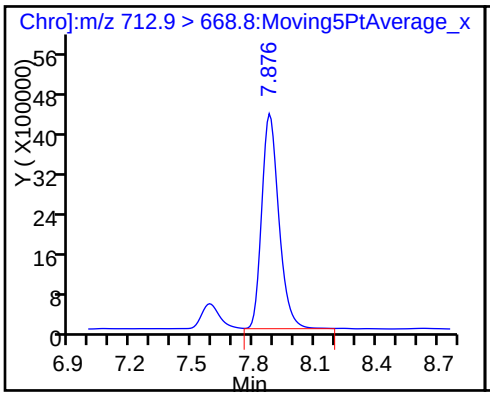
32 Perfluorooctane Sulfonamide



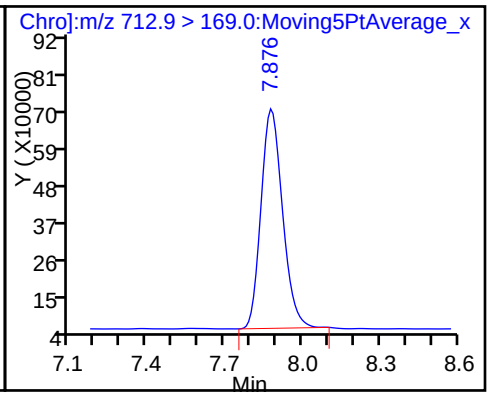
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Lab Sample ID: CCV 280-333083/30 Calibration Date: 07/08/2016 18:33

Instrument ID: LC_LCMS5 Calib Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calib End Date: 06/06/2016 16:28

Lab File ID: PC516G08035.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	Lin2		1.052		4.91	5.00	-1.9	30.0
Perfluoropentanoic acid (PFPA)	Lin2		1.297		5.50	5.00	10.0	30.0
Perfluorobutane Sulfonate (PFBS)	Lin2		4.914		4.17	4.43	-5.8	30.0
Perfluorobutanesulfonic acid	Lin2		4.914		4.17	4.43	-5.8	30.0
Perfluorohexanoic acid (PFHxA)	Lin2		1.002		5.29	5.00	5.7	30.0
Perfluoroheptanoic acid (PFHpA)	Lin2		0.9044		5.18	5.00	3.6	30.0
Perfluorohexane Sulfonate (PFHxS)	Lin2		4.333		5.25	4.73	11.1	30.0
Perfluorohexanesulfonic acid	Lin2		4.333		5.25	4.73	11.1	30.0
Perfluoroheptane Sulfonate	Lin2		1.183		4.65	4.76	-2.3	30.0
Perfluoroheptanesulfonic Acid (PFHpS)	Lin2		1.183		4.65	4.76	-2.3	30.0
Perfluorooctanoic acid (PFOA)	Lin2		1.193		5.69	5.00	13.9	30.0
Perfluorooctanesulfonic acid (PFOS)	Lin2		1.201		4.86	4.78	1.7	30.0
Perfluorononanoic acid (PFNA)	Lin2		1.131		5.02	5.00	0.4	30.0
Perfluorodecanoic acid (PFDA)	Lin2		1.026		5.07	5.00	1.5	30.0
Perfluorodecane sulfonate (PFDS)	Lin2		1.252		4.86	4.83	0.8	30.0
Perfluorodecane Sulfonic acid	Lin2		1.252		4.86	4.83	0.8	30.0
Perfluoroundecanoic acid (PFUnA)	Lin2		1.483		5.21	5.00	4.1	30.0
Perfluorododecanoic acid (PFDoA)	Lin2		1.021		4.94	5.00	-1.2	30.0
Perfluorooctane Sulfonamide (FOSA)	Lin2		1.133		5.21	5.00	4.3	30.0
Perfluorotridecanoic Acid (PFTriA)	Lin2		1.001		5.34	5.00	6.9	30.0
Perfluorotetradecanoic acid (PFTeA)	Lin2		0.7850		6.64	5.00	32.8*	30.0
13C8 PFOA	Lin2		0.9124		5.62	5.00	12.4	30.0
13C8 PFOS	Lin2		0.7017		5.47	4.78	14.5	30.0

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08035.d
Lims ID: CCV PFC L5
Client ID:
Sample Type: CCV
Inject. Date: 08-Jul-2016 18:33:29 ALS Bottle#: 0 Worklist Smp#: 30
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: CCV PFC L5, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 11-Jul-2016 11:13:57 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK031

First Level Reviewer: fiedlerh Date: 11-Jul-2016 11:13:46

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.219	4.219	0.0		30376165	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	4.219	4.219	0.0	1.000	15980854	4.91			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.223	5.223	0.0	0.899	12840505	5.50			
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.336	5.336	0.0	0.855	5300117	4.17			
298.9 > 98.9	5.336	5.336	0.0	0.855	1611348		3.29(1.80-3.35)		
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.336	5.336	0.0	0.855	5300117	4.17			
298.9 > 98.9	5.336	5.336	0.0	0.855	1611348		3.29(2.57-2.57)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.809	5.809	0.0		19802874	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.809	5.809	0.0	1.000	9918556	5.29			
313.0 > 118.6	5.800	5.809	-0.009	0.998	279942		35.43(34.05-63.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.244	6.244	0.0		2305882	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.244	6.244	0.0	1.000	4990153	5.25			R
398.9 > 98.9	6.244	6.244	0.0	1.000	1542518		3.24(1.30-2.41)		
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.244	6.244	0.0	1.000	4990153	5.25			
398.9 > 98.9	6.244	6.244	0.0	1.000	1542518		3.24(1.85-1.85)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.235	6.235	0.0	0.946	14253482	5.18			
363.0 > 168.9	6.235	6.235	0.0	0.946	3808068		3.74(3.35-6.23)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.583	6.583	0.0	0.959	5147020	4.65			
449.0 > 98.9	6.583	6.583	0.0	0.959	1463647		3.52(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.583	6.583	0.0	0.959	5147020	4.65			
449.0 > 98.9	6.583	6.583	0.0	0.959	1463647		3.52(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.593	6.593	0.0	1.000	14379913	5.62			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.593	6.593	0.0		31520361	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.584	6.584	0.0	0.999	18794150	5.69			
413.0 > 169.0	6.594	6.584	0.010	1.000	5963124		3.15(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.865	6.865	0.0	1.000	3066377	5.47			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.866	6.866	0.0	1.000	5240812	4.86			R
498.9 > 98.9	6.866	6.866	0.0	1.000	1911505		2.74(1.31-2.43)		
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.866	6.866	0.0		8739348	9.56			
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.895	6.895	0.0		24969715	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.886	6.886	0.0	0.999	14118453	5.02			
463.0 > 218.9	6.895	6.886	0.009	1.000	2017674		7.00(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.149	7.149	0.0		26082802	10.0			
23 Perfluorodecanoic acid									R
513.0 > 468.9	7.149	7.149	0.0	1.000	13375282	5.07			R
513.0 > 219.0	7.149	7.149	0.0	1.000	1374378		9.73(10.49-19.48)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.337	7.337	0.0	1.069	5521557	4.86			
598.9 > 99.0	7.337	7.337	0.0	1.069	1687653		3.27(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.337	7.337	0.0	1.069	5521557	4.86			
598.9 > 99.0	7.337	7.337	0.0	1.069	1687653		3.27(2.84-2.84)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.366	7.366	0.0		15905649	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.366	7.366	0.0	1.000	11791030	5.21			R
563.0 > 268.9	7.366	7.366	0.0	1.000	1503542		7.84(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.555	7.555	0.0		33243059	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.555	7.555	0.0	1.000	16972782	4.94			
613.0 > 168.9	7.555	7.555	0.0	1.000	2094615		8.10(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.614	7.614	0.0		25450443	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.615	7.615	0.0	1.000	14417968	5.21			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.725	7.725	0.0	1.023	16638978	5.34			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.866	7.866	0.0	1.041	13047354	6.64			
712.9 > 169.0	7.866	7.866	0.0	1.041	1897644		6.88(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Reagents:

PFC-IS_00021	Amount Added: 20.00	Units: uL
PFC_Surr_00021	Amount Added: 10.00	Units: uL
PFC-LCS_00078	Amount Added: 10.00	Units: uL

Report Date: 11-Jul-2016 11:13:57 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08035.d

Injection Date: 08-Jul-2016 18:33:29 Instrument ID: LC_LCMS5

Lims ID: CCV PFC L5

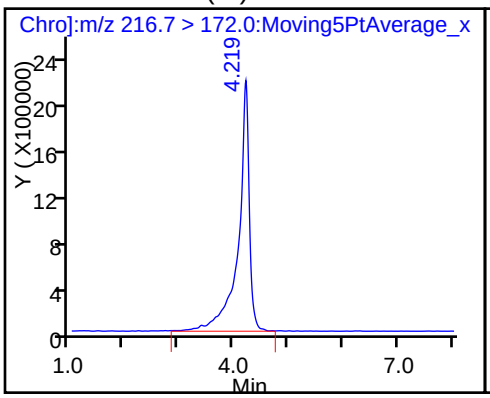
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 30

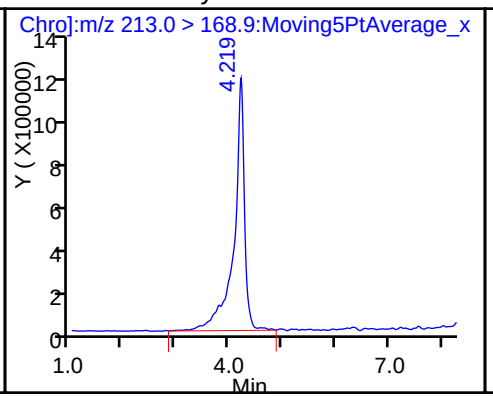
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

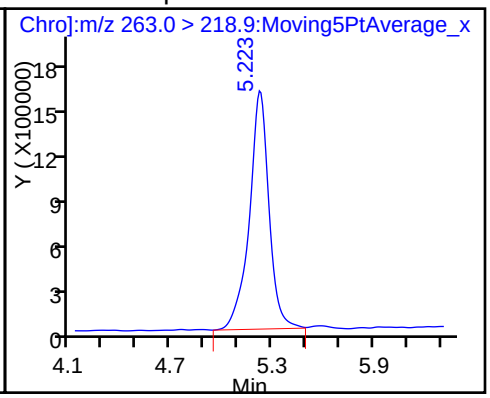
* 1 13C4 PFBA (IS)



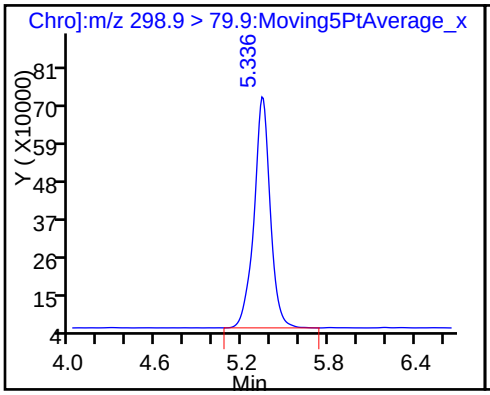
2 Perfluorobutyric acid



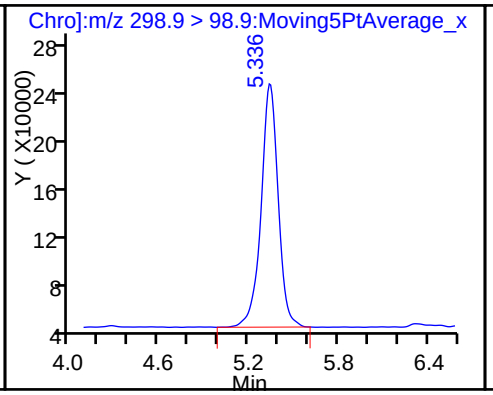
3 Perfluoropentanoic acid



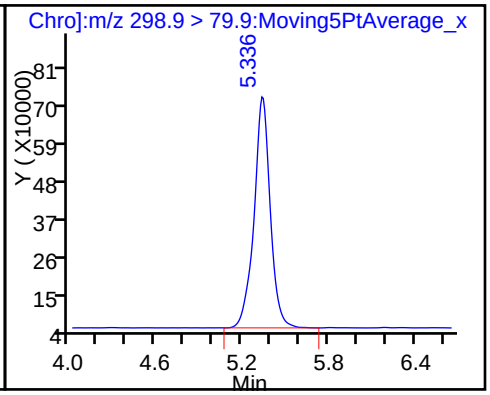
4 Perfluorobutane Sulfonate



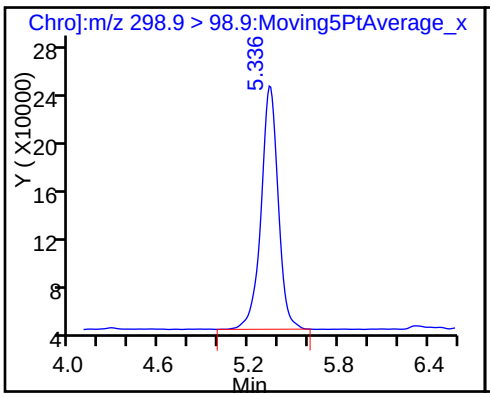
4 Perfluorobutane Sulfonate



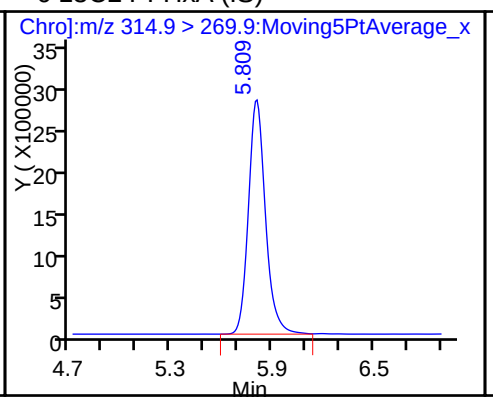
5 Perfluorobutanesulfonic acid



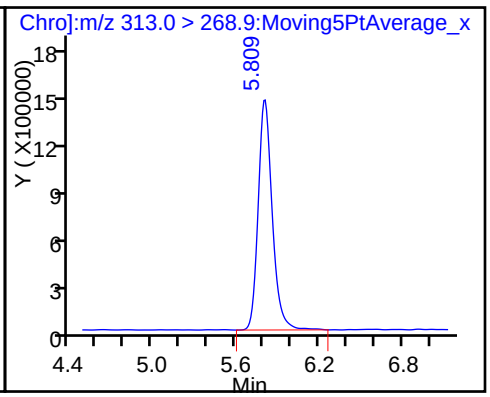
5 Perfluorobutanesulfonic acid



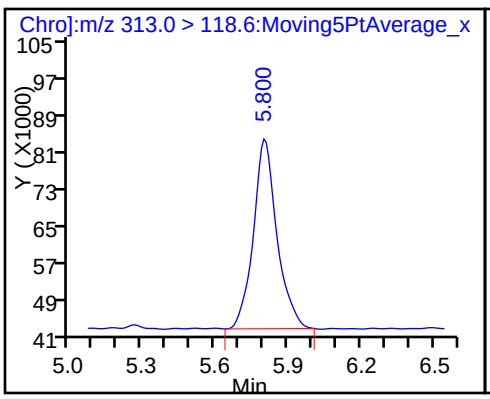
* 6 13C2 PFHxA (IS)



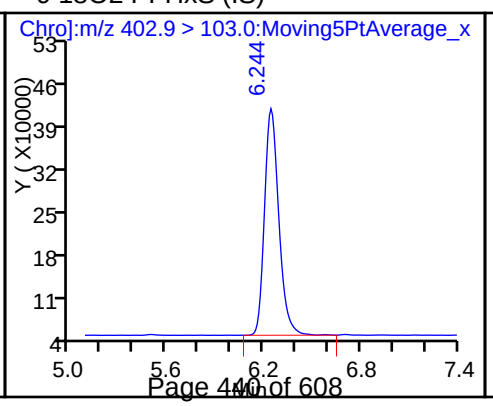
7 Perfluorohexanoic acid



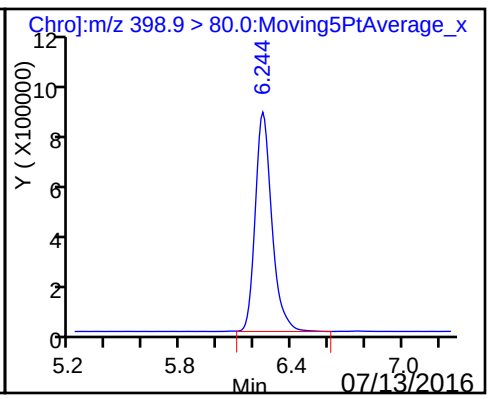
7 Perfluorohexanoic acid



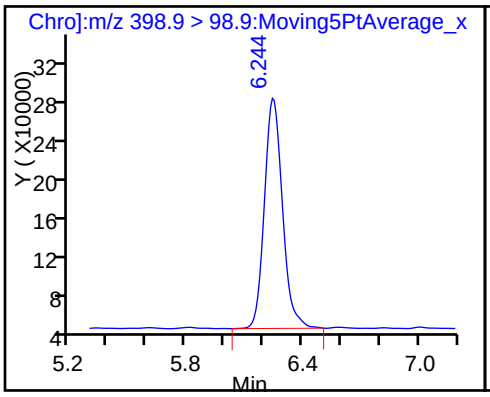
* 9 18O2 PFHxS (IS)



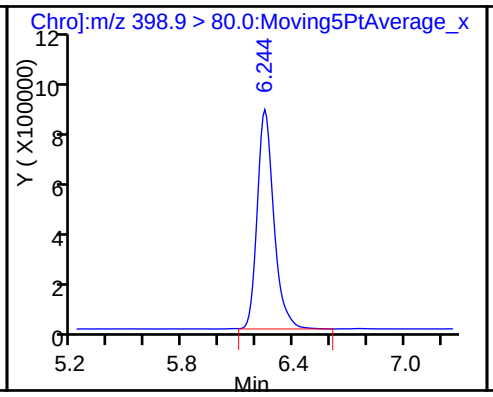
10 Perfluorohexane Sulfonate



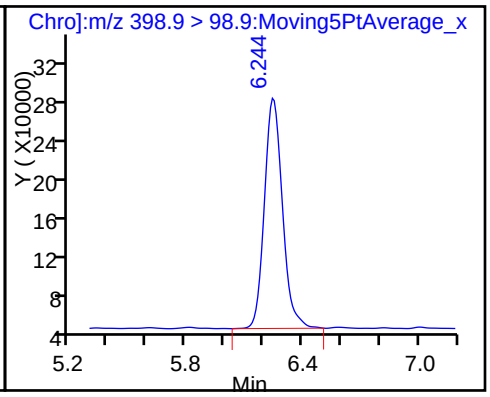
10 Perfluorohexane Sulfonate



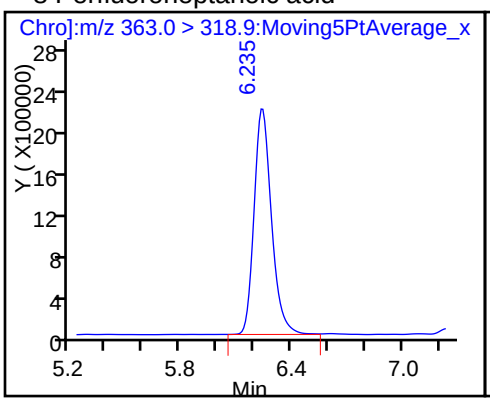
11 Perfluorohexanesulfonic acid



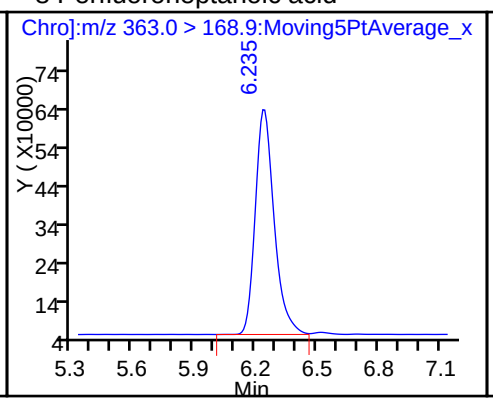
11 Perfluorohexanesulfonic acid



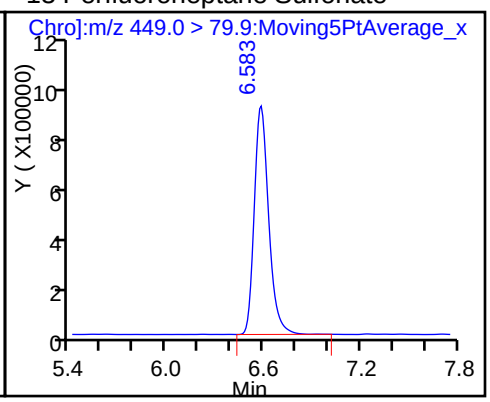
8 Perfluoroheptanoic acid



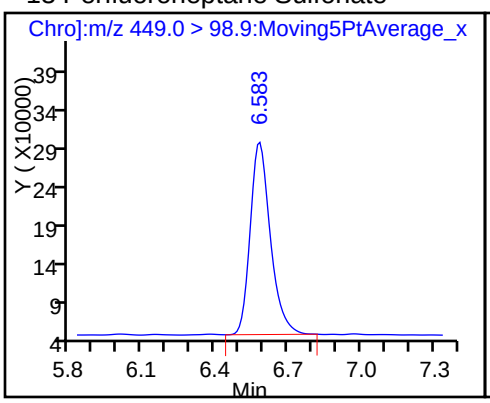
8 Perfluoroheptanoic acid



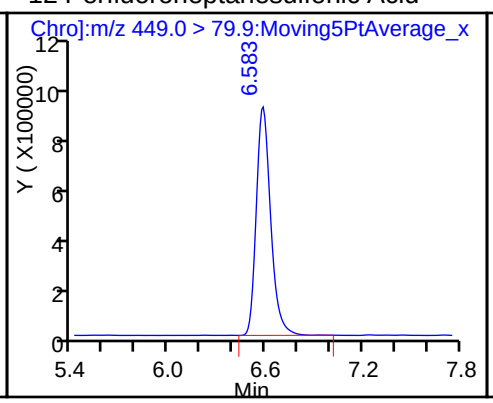
13 Perfluoroheptane Sulfonate



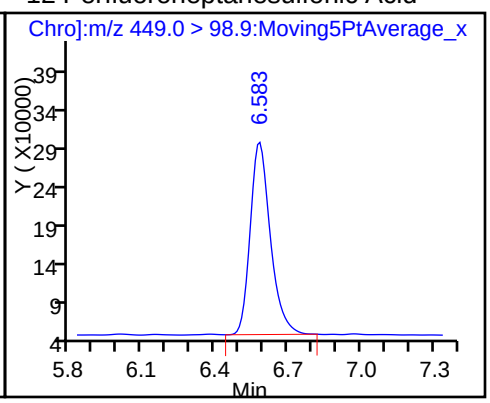
13 Perfluoroheptane Sulfonate



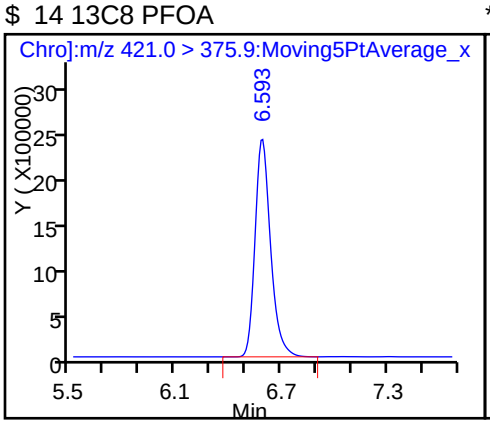
12 Perfluoroheptanesulfonic Acid



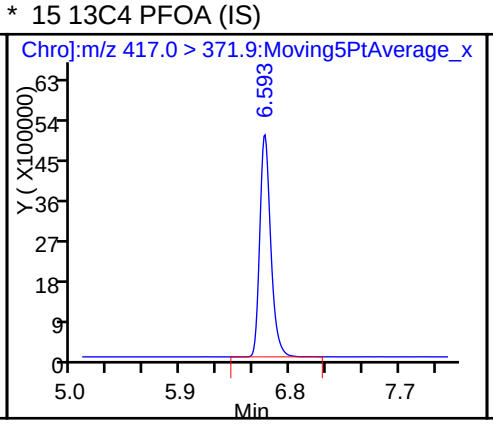
12 Perfluoroheptanesulfonic Acid



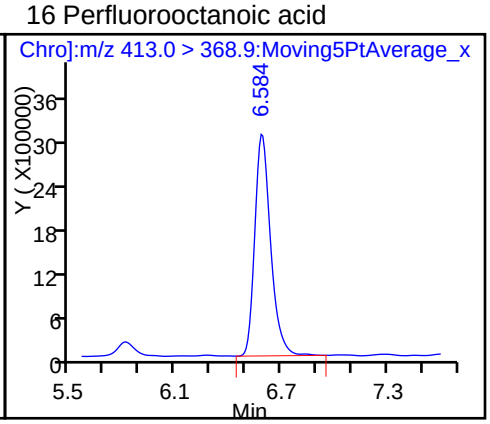
$ 14 13C8 PFOA



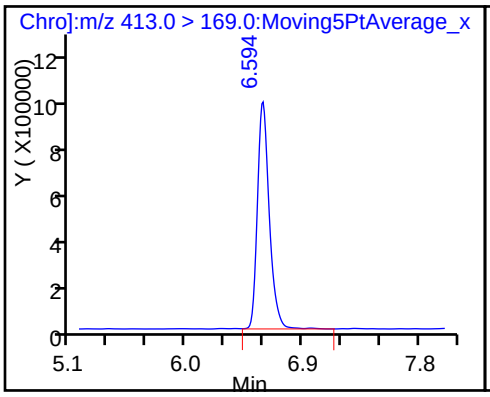
* 15 13C4 PFOA (IS)



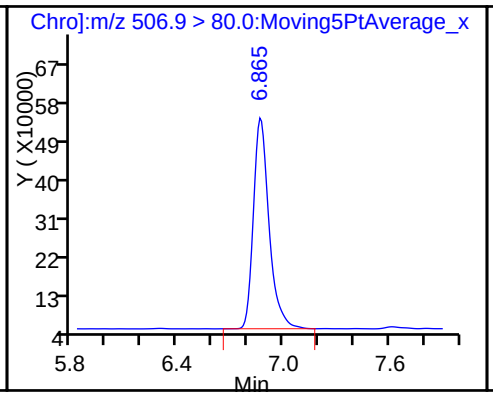
16 Perfluorooctanoic acid



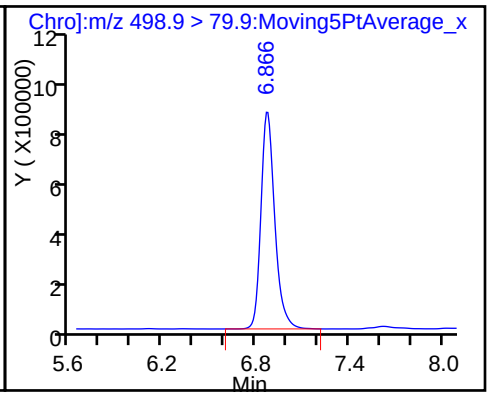
16 Perfluorooctanoic acid



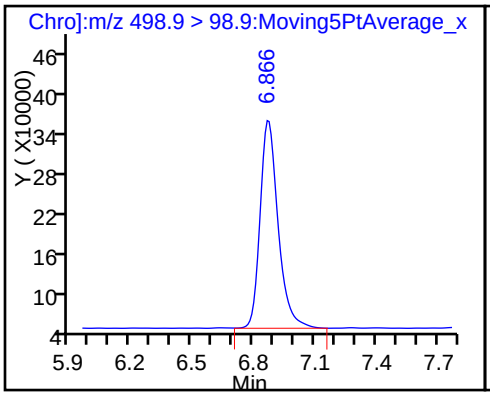
$ 18 13C8 PFOS



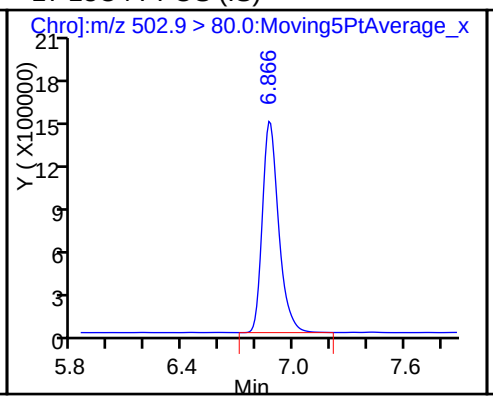
19 Perfluorooctane sulfonic acid



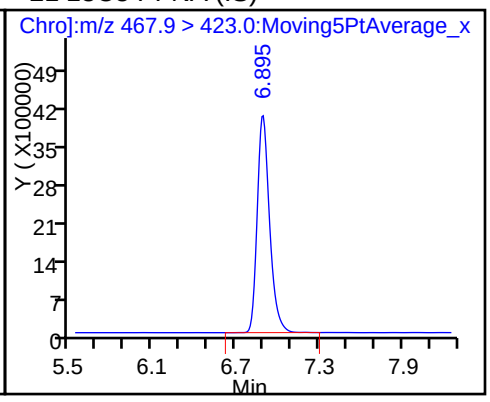
19 Perfluorooctane sulfonic acid



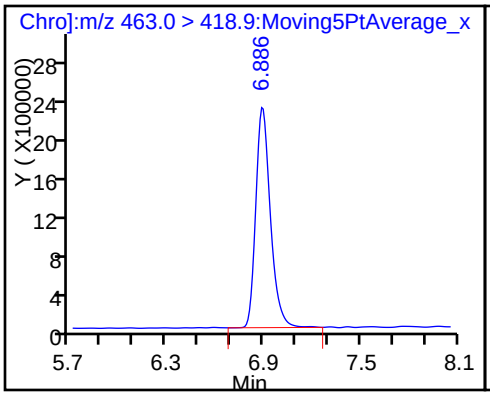
* 17 13C4 PFOS (IS)



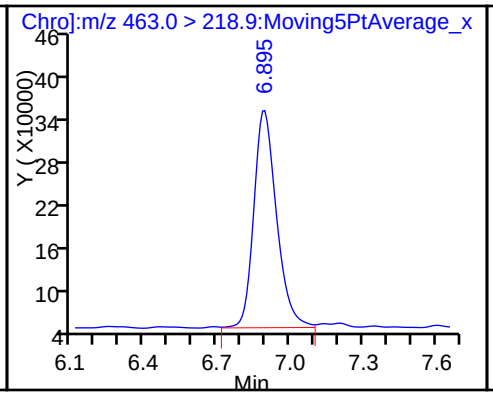
* 21 13C5 PFNA (IS)



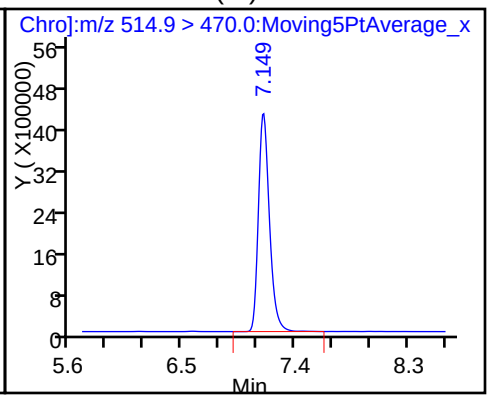
20 Perfluorononanoic acid



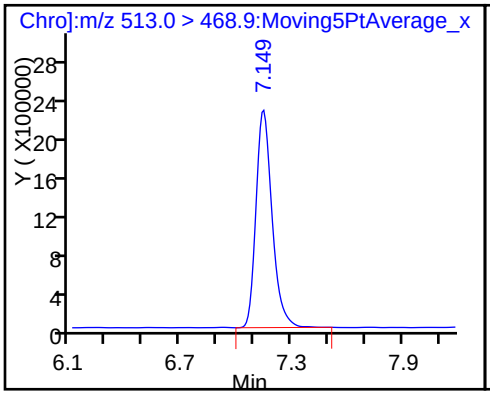
20 Perfluorononanoic acid



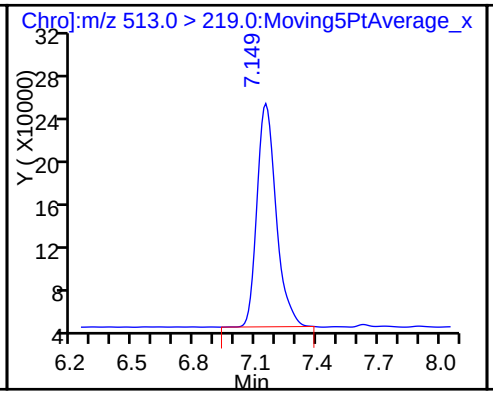
* 22 13C2 PFDA (IS)



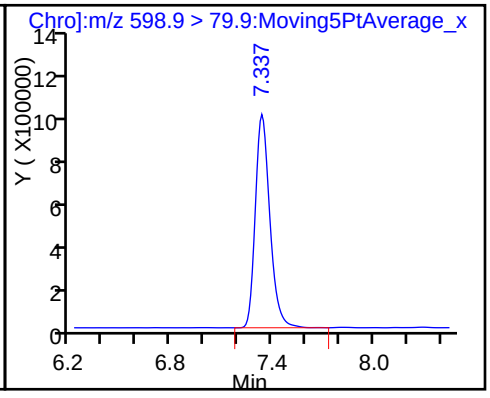
23 Perfluorodecanoic acid



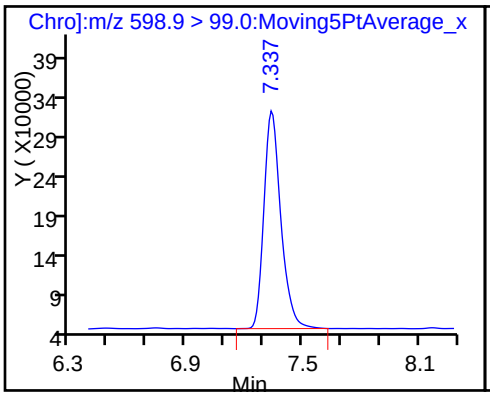
23 Perfluorodecanoic acid



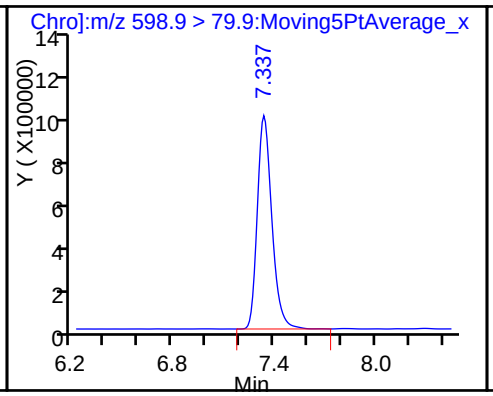
25 Perfluorodecane Sulfonate



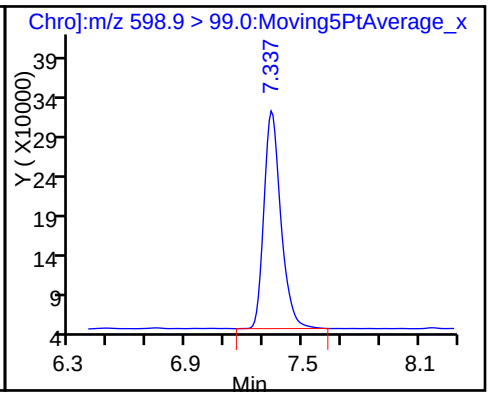
25 Perfluorodecane Sulfonate



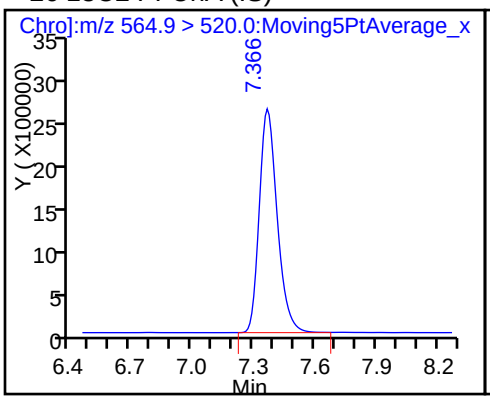
24 Perfluorodecane Sulfonic acid



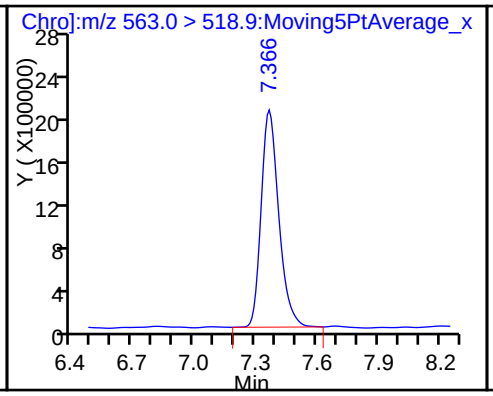
24 Perfluorodecane Sulfonic acid



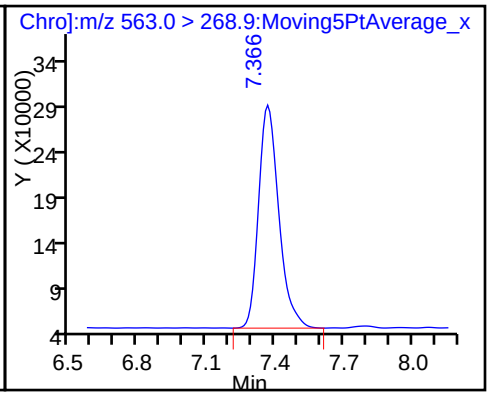
* 26 13C2 PFUnA (IS)



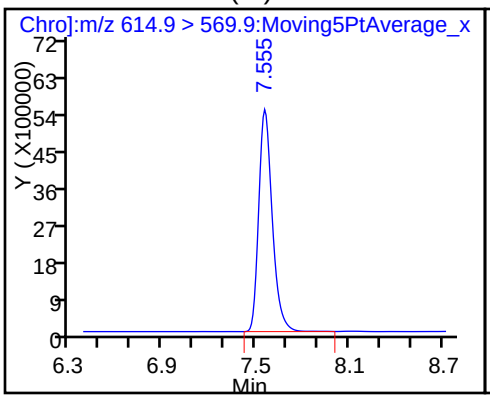
27 Perfluoroundecanoic acid



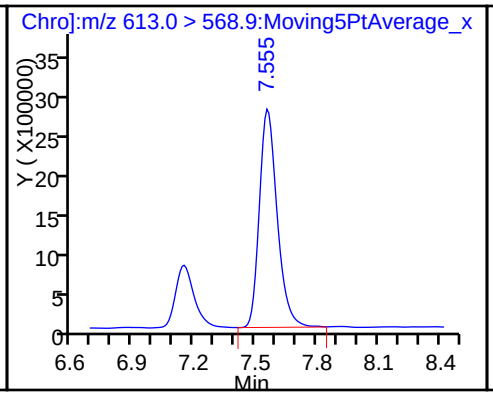
27 Perfluoroundecanoic acid



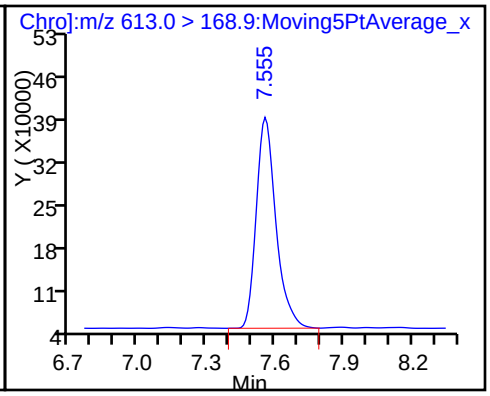
* 28 13C2 PFDoA (IS)



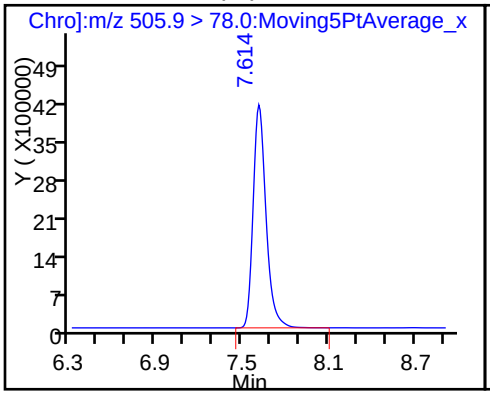
29 Perfluorododecanoic acid



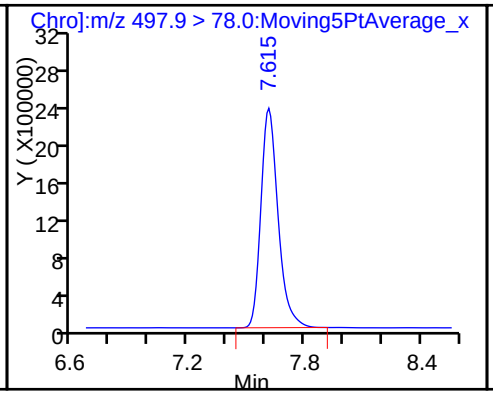
29 Perfluorododecanoic acid



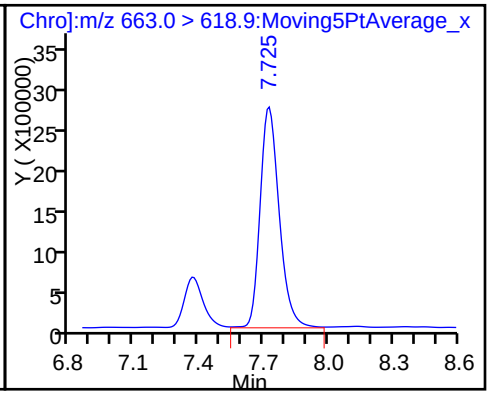
* 31 13C8 FOSA (IS)



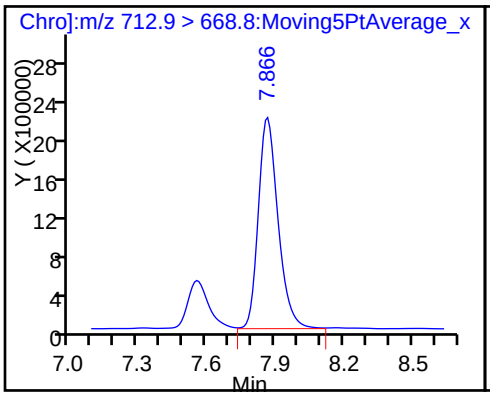
32 Perfluorooctane Sulfonamide



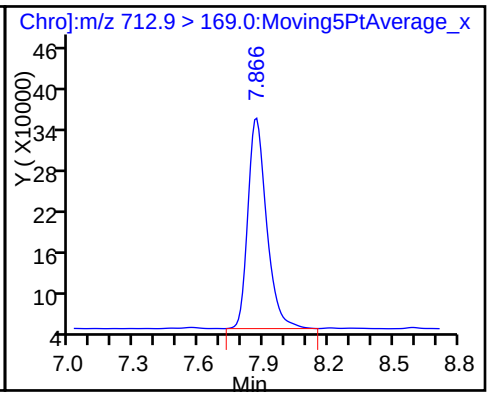
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 280-332379/1-A

Matrix: Water | Lab File ID: PC516G07061.d

Analysis Method: DV-LC-0012 | Date Collected:

Extraction Method: 3535 | Date Extracted: 07/05/2016 12:12

Sample wt/vol: 250(mL) | Date Analyzed: 07/07/2016 18:33

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 332793 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.0082	U	0.020	0.0082
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.013	U	0.030	0.013
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.0070	U	0.030	0.0070
375-95-1	Perfluorononanoic acid (PFNA)	0.017	U	0.040	0.017
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.013	U	0.030	0.013
335-67-1	Perfluorooctanoic acid (PFOA)	0.0098	U	0.020	0.0098

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	100		60-155
STL01054	13C8 PFOS	101		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07061.d
Lims ID: MB 280-332379/1-A
Client ID:
Sample Type: MB
Inject. Date: 07-Jul-2016 18:33:55 ALS Bottle#: 0 Worklist Smp#: 26
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: MB 280-332379/1-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 08-Jul-2016 09:16:52 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK002

First Level Reviewer: fiedlerh Date: 08-Jul-2016 08:20:40

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.418	4.522	-0.104		36770661	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9		4.522				ND			
3 Perfluoropentanoic acid									
263.0 > 218.9		5.488				ND			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.592				ND			
298.9 > 98.9		5.592							
5 Perfluorobutanesulfonic acid									
298.9 > 79.9		5.592				ND			
298.9 > 98.9		5.592							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.970	6.027	-0.057		24453644	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.970	6.027	-0.057	1.000	199806	0.0647			
313.0 > 118.6	5.951	6.027	-0.076	0.997	5861		34.09(34.05-63.23)		
11 Perfluorohexanesulfonic acid									
398.9 > 80.0		6.433				ND			
398.9 > 98.9		6.433							
10 Perfluorohexane Sulfonate									
398.9 > 80.0		6.433				ND			
398.9 > 98.9		6.433							
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.434				ND			
363.0 > 168.9		6.434							
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.386	6.433	-0.047		2706045	9.46			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9		6.763				ND			
449.0 > 98.9		6.763							
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9		6.763				ND			
449.0 > 98.9		6.763							
$ 14 13C8 PFOA									
421.0 > 375.9	6.716	6.773	-0.057	1.000	31122668	9.98			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.717	6.773	-0.056		38562461	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9		6.774				ND			
413.0 > 169.0		6.774							
$ 18 13C8 PFOS									
506.9 > 80.0	6.979	7.036	-0.057	1.000	6597160	9.69			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.980	7.036	-0.056		10650628	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9		7.037				ND			
498.9 > 98.9		7.037							
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.999	7.056	-0.057		29804373	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9		7.056				ND			
463.0 > 218.9		7.056							
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.244	7.301	-0.057		32200204	10.0			
23 Perfluorodecanoic acid									
513.0 > 468.9		7.301				ND			
513.0 > 219.0		7.301							
25 Perfluorodecane Sulfonate									
598.9 > 79.9		7.479				ND			
598.9 > 99.0		7.479							
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9		7.479				ND			
598.9 > 99.0		7.479							
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.451	7.508	-0.057		18738423	10.0			
27 Perfluoroundecanoic acid									
563.0 > 518.9		7.508				ND			
563.0 > 268.9		7.508							
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.630	7.687	-0.057		28024023	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9		7.687				ND			
613.0 > 168.9		7.687							
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.680	7.728	-0.048		733000	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0		7.729				ND			
30 Perfluorotridecanoic acid									
663.0 > 618.9		7.848				ND			
33 Perfluorotetradecanoic acid									
712.9 > 668.8		7.980				ND			
712.9 > 169.0		7.980							

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

s - Failed ISTD Recovery Test

Report Date: 08-Jul-2016 09:16:57 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07061.d

Injection Date: 07-Jul-2016 18:33:55 Instrument ID: LC_LCMS5

Lims ID: MB 280-332379/1-A

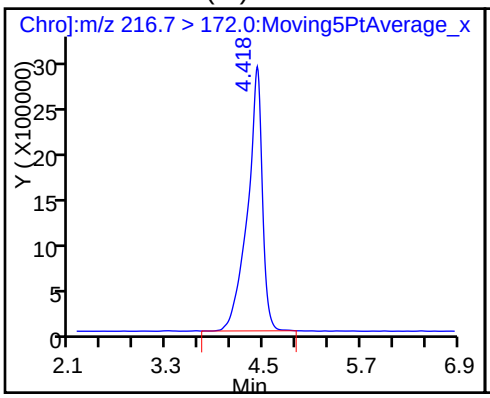
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 26

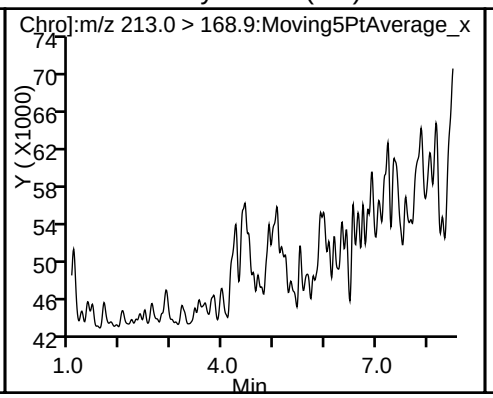
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

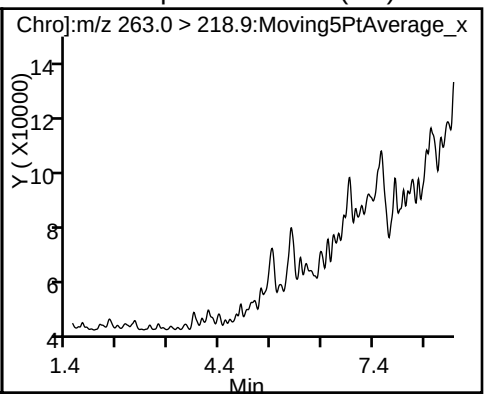
* 1 13C4 PFBA (IS)



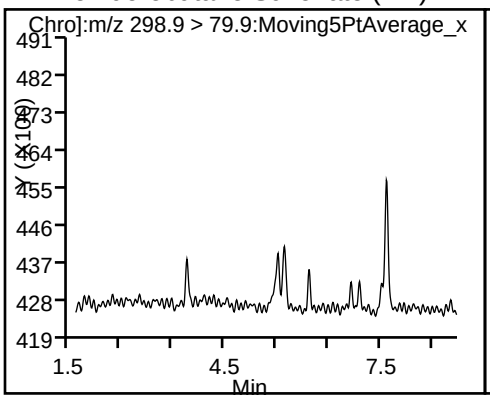
2 Perfluorobutyric acid (ND)



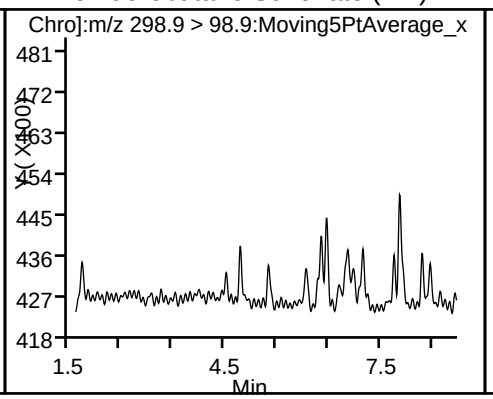
3 Perfluoropentanoic acid (ND)



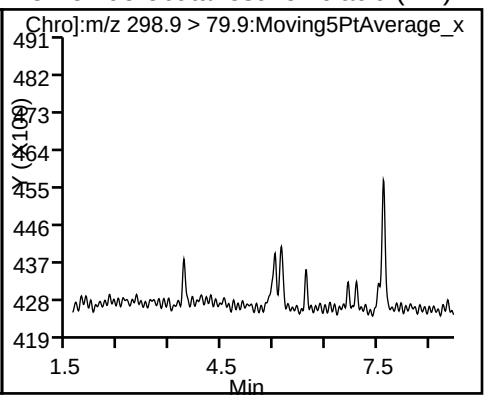
4 Perfluorobutane Sulfonate (ND)



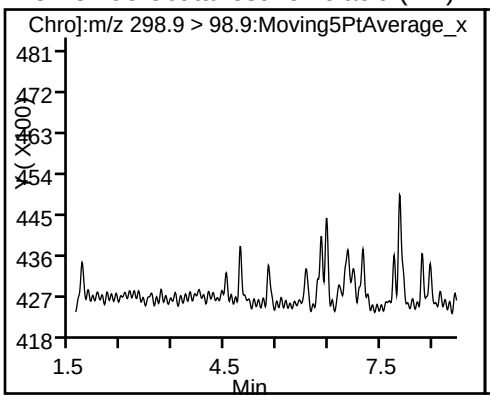
4 Perfluorobutane Sulfonate (ND)



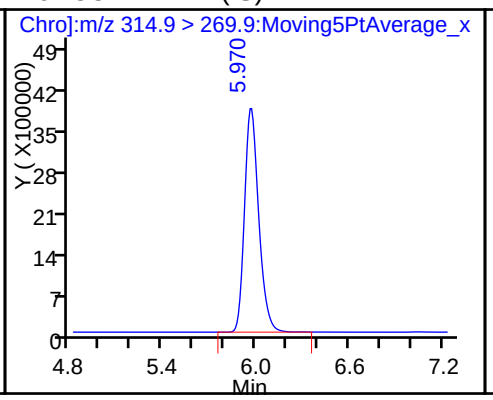
5 Perfluorobutanesulfonic acid (ND)



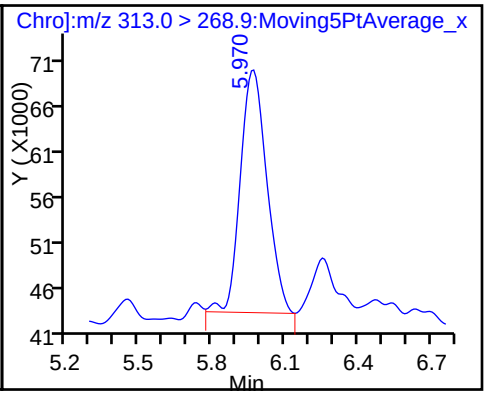
5 Perfluorobutanesulfonic acid (ND)



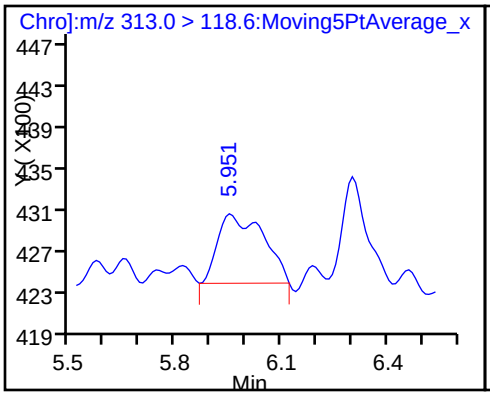
* 6 13C2 PFHxA (IS)



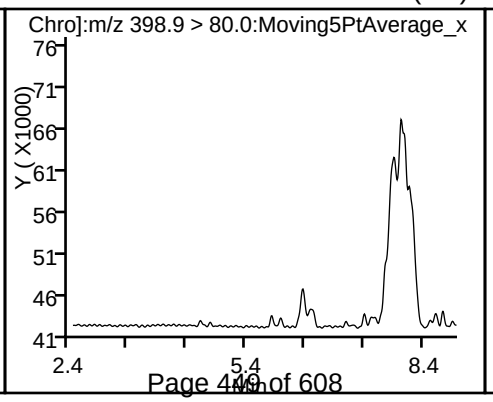
7 Perfluorohexanoic acid



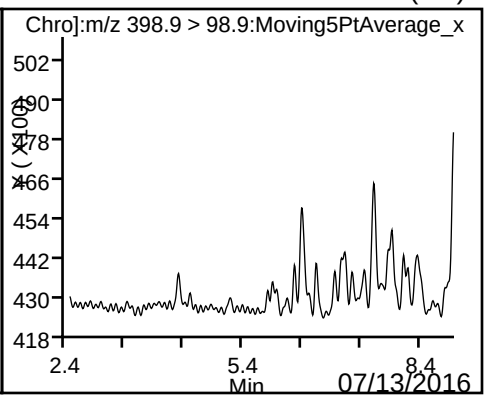
7 Perfluorohexanoic acid



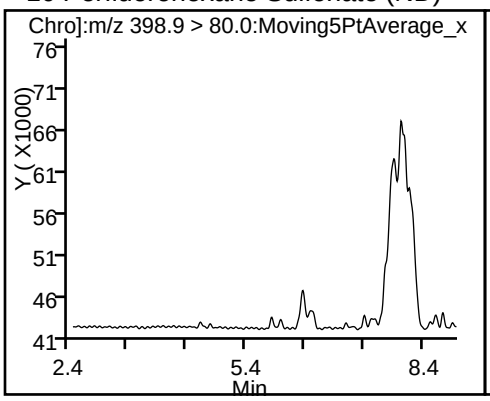
11 Perfluorohexanesulfonic acid (ND)



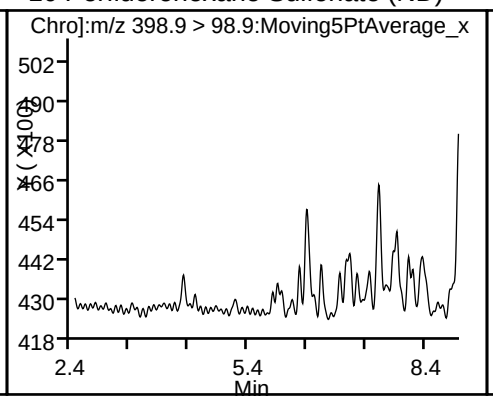
11 Perfluorohexanesulfonic acid (ND)



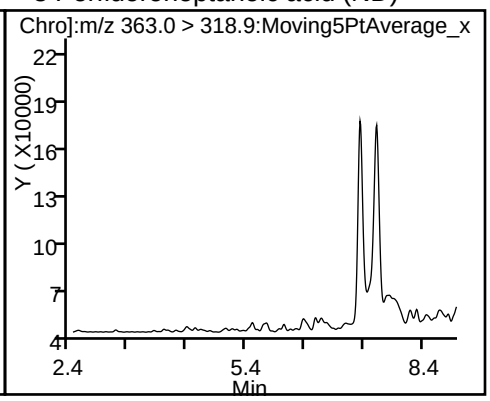
10 Perfluorohexane Sulfonate (ND)



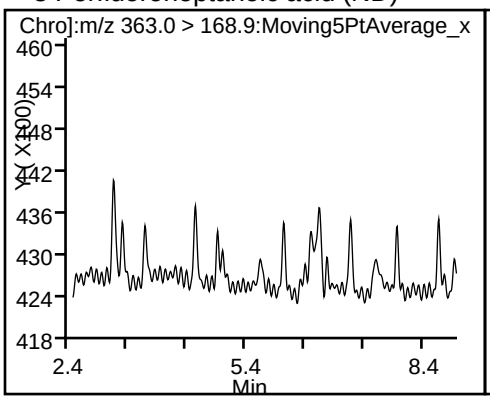
10 Perfluorohexane Sulfonate (ND)



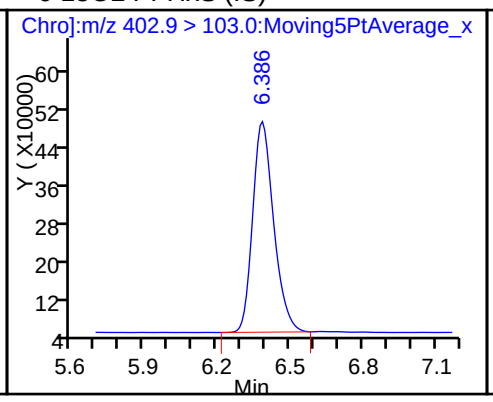
8 Perfluoroheptanoic acid (ND)



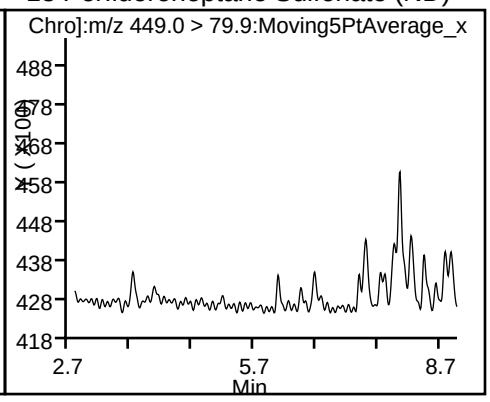
8 Perfluoroheptanoic acid (ND)



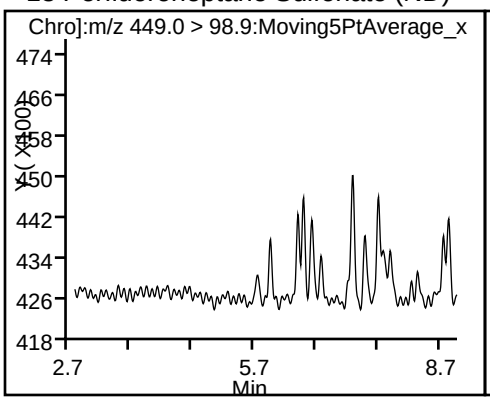
* 9 18O2 PFHxS (IS)



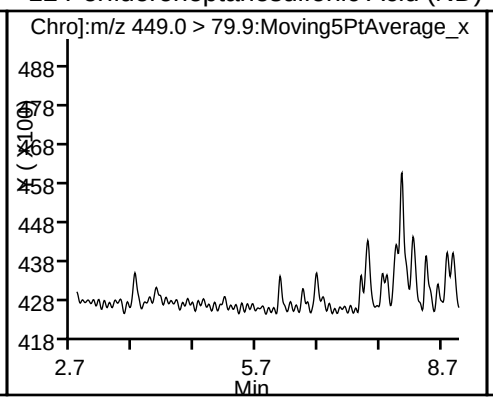
13 Perfluoroheptane Sulfonate (ND)



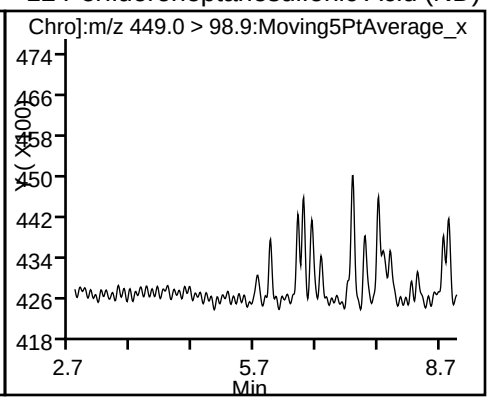
13 Perfluoroheptane Sulfonate (ND)



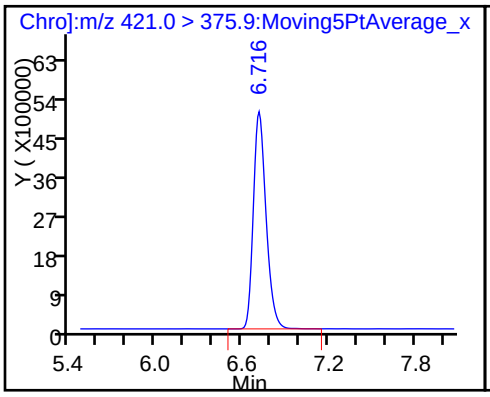
12 Perfluoroheptanesulfonic Acid (ND)



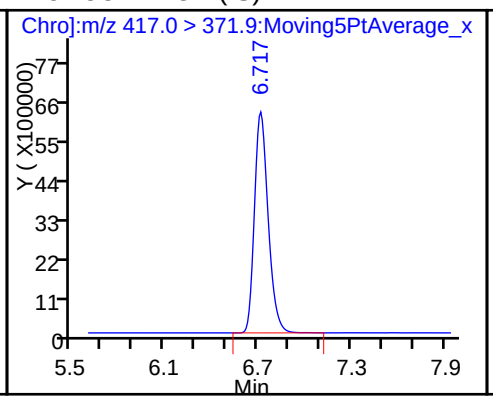
12 Perfluoroheptanesulfonic Acid (ND)



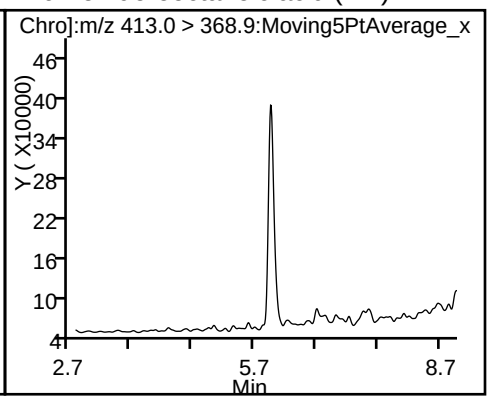
$ 14 13C8 PFOA



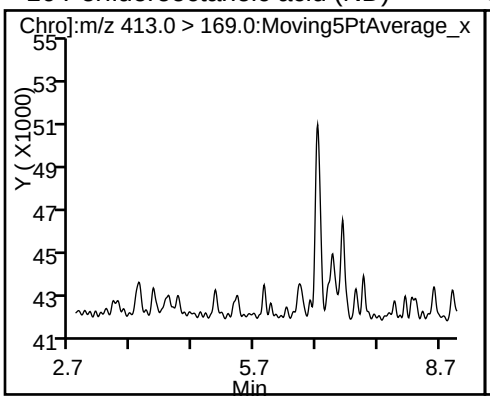
* 15 13C4 PFOA (IS)



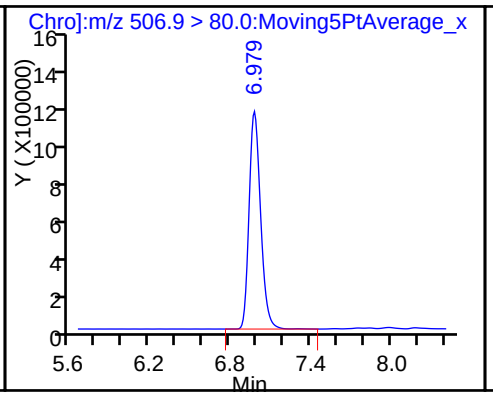
16 Perfluorooctanoic acid (ND)



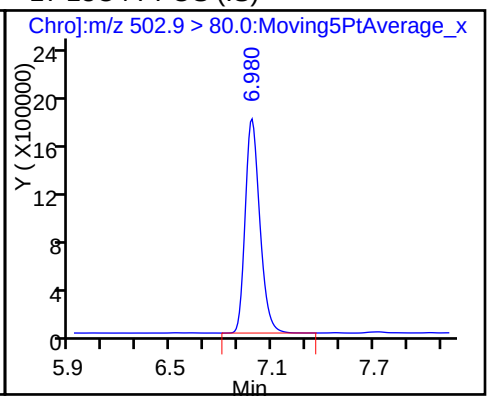
16 Perfluorooctanoic acid (ND)



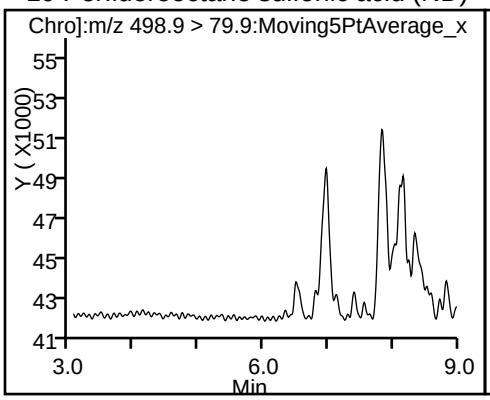
$ 18 13C8 PFOS



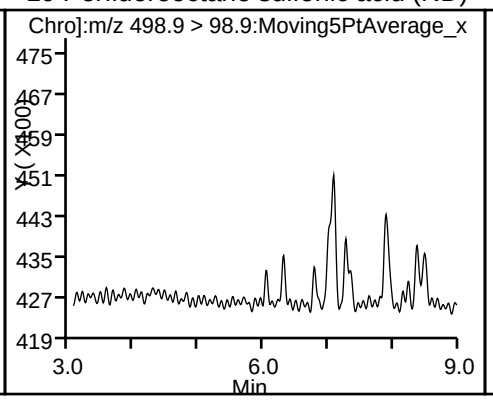
* 17 13C4 PFOS (IS)



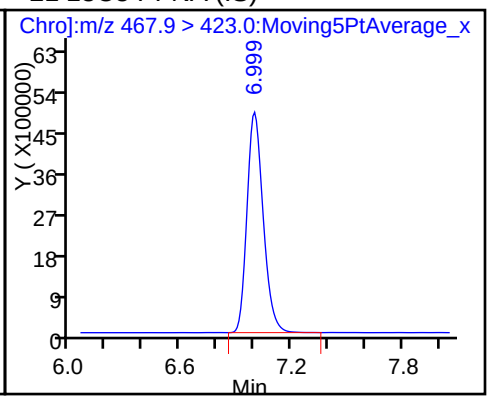
19 Perfluorooctane sulfonic acid (ND)



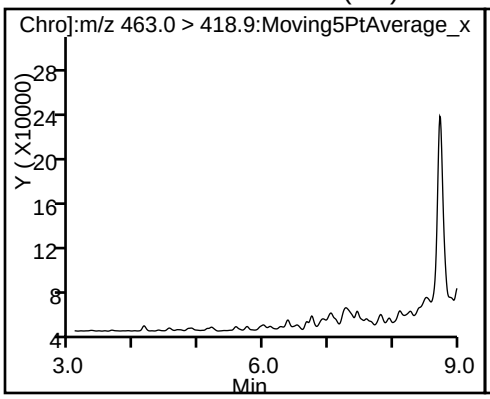
19 Perfluorooctane sulfonic acid (ND)



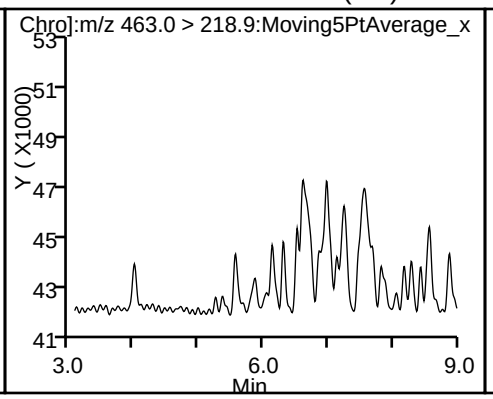
* 21 13C5 PFNA (IS)



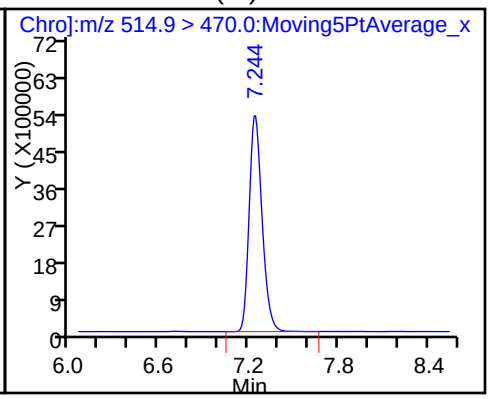
20 Perfluorononanoic acid (ND)



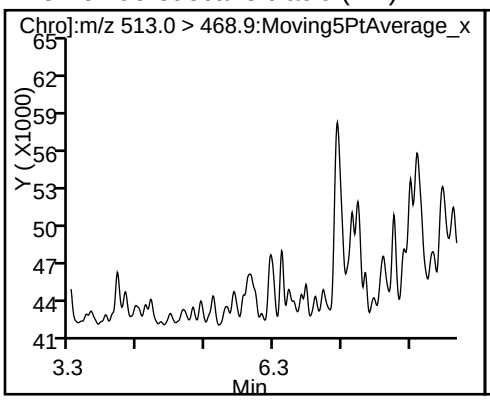
20 Perfluorononanoic acid (ND)



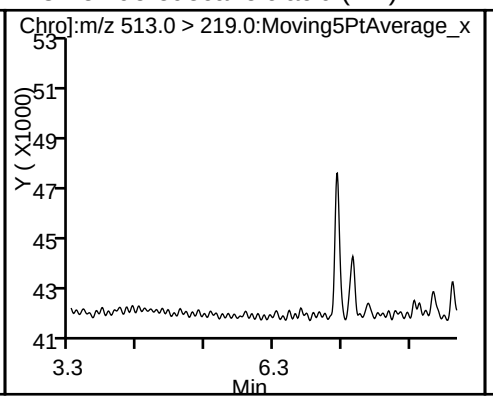
* 22 13C2 PFDA (IS)



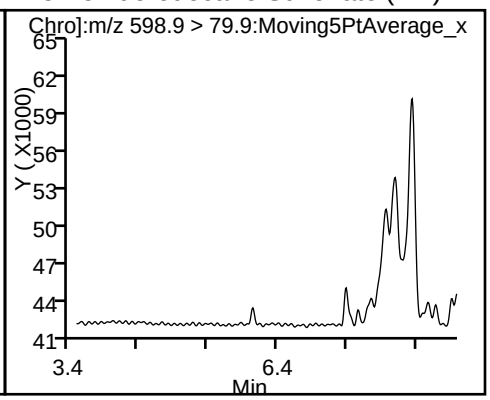
23 Perfluorodecanoic acid (ND)



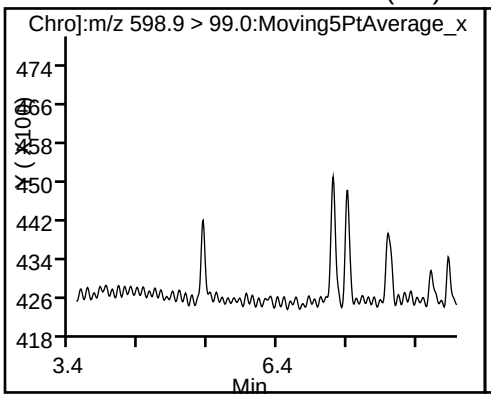
23 Perfluorodecanoic acid (ND)



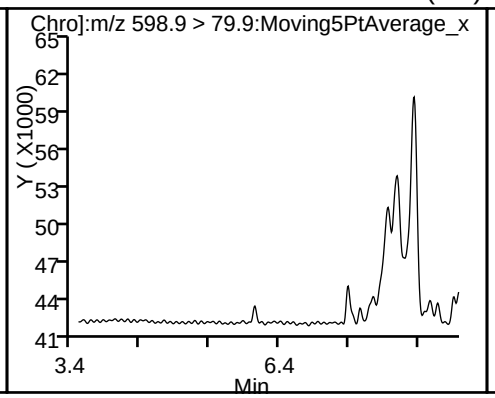
25 Perfluorodecane Sulfonate (ND)



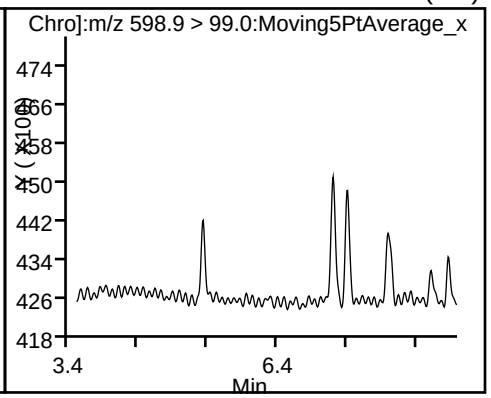
25 Perfluorodecane Sulfonate (ND)



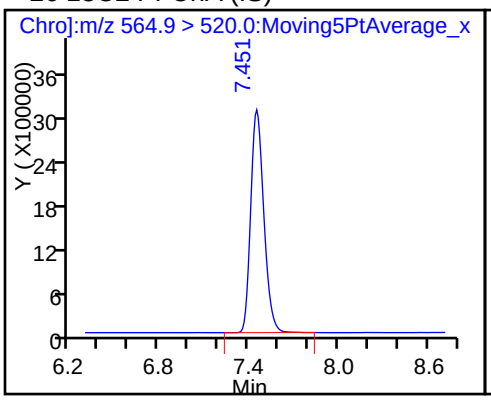
24 Perfluorodecane Sulfonic acid (ND)



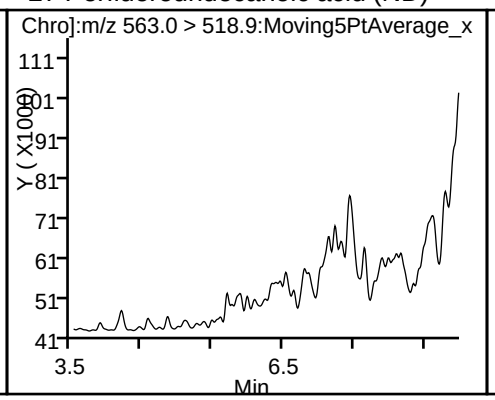
24 Perfluorodecane Sulfonic acid (ND)



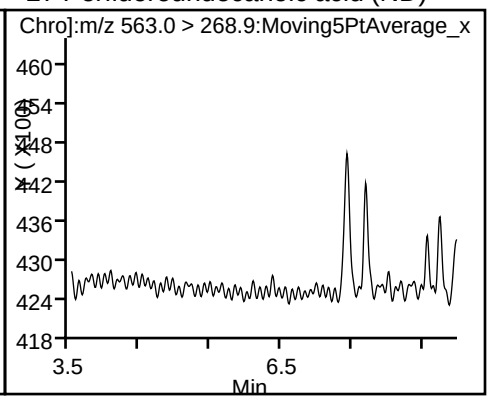
* 26 13C2 PFUnA (IS)



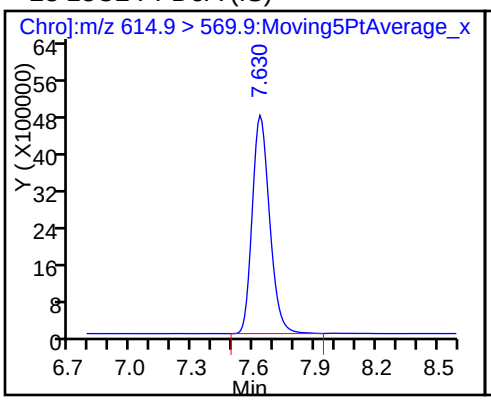
27 Perfluoroundecanoic acid (ND)



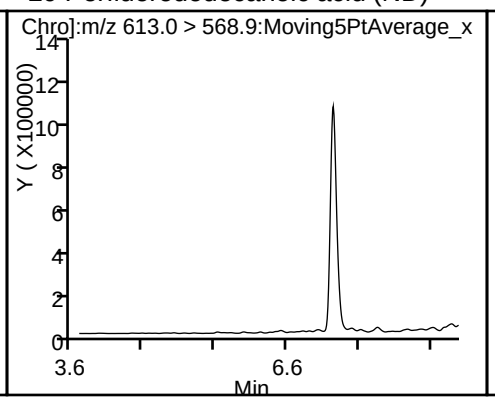
27 Perfluoroundecanoic acid (ND)



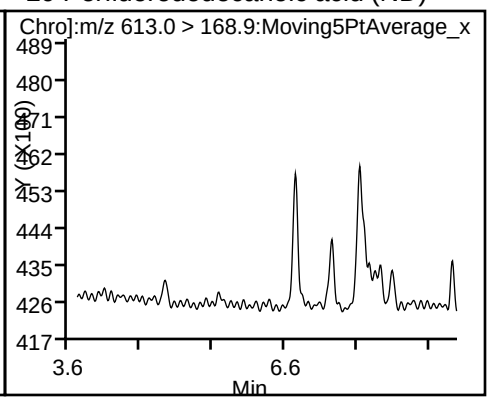
* 28 13C2 PFDoA (IS)



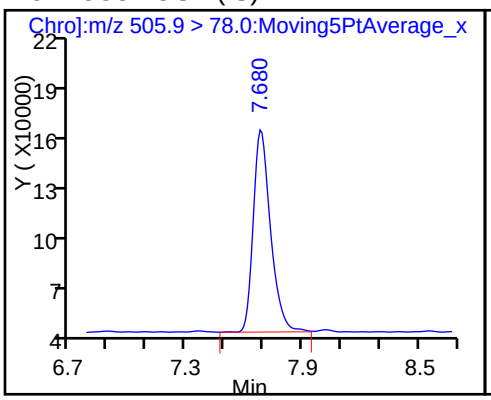
29 Perfluorododecanoic acid (ND)



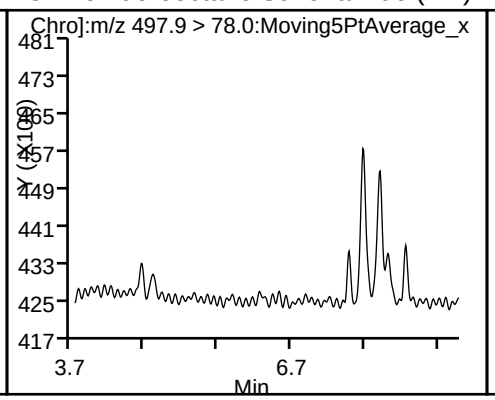
29 Perfluorododecanoic acid (ND)



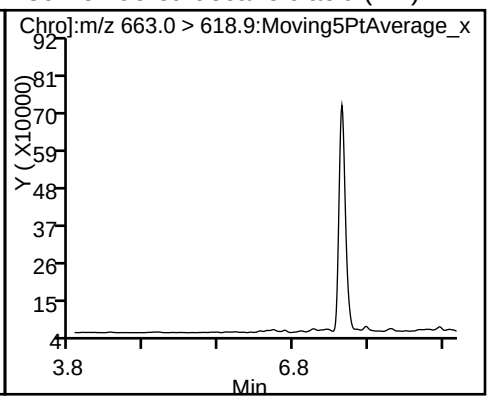
* 31 13C8 FOSA (IS)



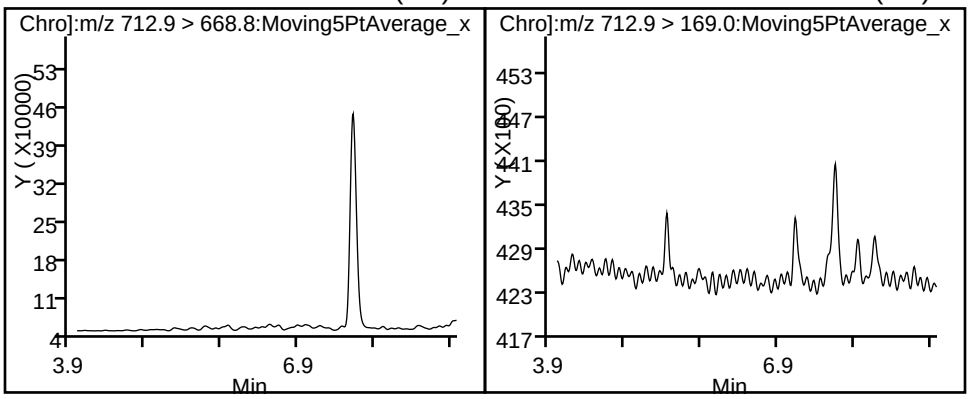
32 Perfluorooctane Sulfonamide (ND)



30 Perfluorotridecanoic acid (ND)



33 Perfluorotetradecanoic acid (ND) 33 Perfluorotetradecanoic acid (ND)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 280-332389/1-A

Matrix: Solid | Lab File ID: PC516G07039.d

Analysis Method: DV-LC-0012 | Date Collected:

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10(g) | Date Analyzed: 07/07/2016 14:03

Con. Extract Vol.: 20(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 332793 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.14	U	0.80	0.14
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.12	U	0.80	0.12
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.28	U	0.80	0.28
375-95-1	Perfluorononanoic acid (PFNA)	0.22	U	0.80	0.22
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.14	U	0.80	0.14
335-67-1	Perfluorooctanoic acid (PFOA)	0.23	U	0.80	0.23

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	105		57-153
STL01054	13C8 PFOS	105		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07039.d
Lims ID: MB 280-332389/1-A
Client ID:
Sample Type: MB
Inject. Date: 07-Jul-2016 14:03:03 ALS Bottle#: 0 Worklist Smp#: 4
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: MB 280-332389/1-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 08-Jul-2016 09:15:01 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK002

First Level Reviewer: fiedlerh Date: 08-Jul-2016 07:54:55

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.617	4.569	0.048		28640381	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9		4.570				ND			
3 Perfluoropentanoic acid									
263.0 > 218.9		5.592				ND			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.705				ND			
298.9 > 98.9		5.705							
5 Perfluorobutanesulfonic acid									
298.9 > 79.9		5.705				ND			
298.9 > 98.9		5.705							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	6.188	6.141	0.047		21623791	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9		6.141				ND			
313.0 > 118.6		6.141							
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.594	6.537	0.057		3069522	9.46			
11 Perfluorohexanesulfonic acid									
398.9 > 80.0		6.538				ND			
398.9 > 98.9		6.538							
10 Perfluorohexane Sulfonate									
398.9 > 80.0		6.538				ND			
398.9 > 98.9		6.538							
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.538				ND			
363.0 > 168.9		6.538							

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9		6.858				ND			
449.0 > 98.9		6.858							
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9		6.858				ND			
449.0 > 98.9		6.858							
$ 14 13C8 PFOA									
421.0 > 375.9	6.925	6.868	0.057	1.000	29310993	10.3			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.925	6.868	0.057		35157747	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9		6.868				ND			
413.0 > 169.0		6.868							
$ 18 13C8 PFOS									
506.9 > 80.0	7.188	7.131	0.057	1.000	6496957	9.79			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	7.188	7.131	0.057		10381794	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9		7.131				ND			
498.9 > 98.9		7.131							
* 21 13C5 PFNA (IS)									
467.9 > 423.0	7.208	7.160	0.048		28662109	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9		7.151				ND			
463.0 > 218.9		7.151							
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.443	7.386	0.057		31920462	10.0			
23 Perfluorodecanoic acid									
513.0 > 468.9		7.386				ND			
513.0 > 219.0		7.386							
25 Perfluorodecane Sulfonate									
598.9 > 79.9		7.555				ND			
598.9 > 99.0		7.555							
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9		7.555				ND			
598.9 > 99.0		7.555							
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.641	7.584	0.057		19463708	10.0			
27 Perfluoroundecanoic acid									
563.0 > 518.9		7.584				ND			
563.0 > 268.9		7.584							
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.801	7.753	0.048		42686742	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9		7.754				ND			
613.0 > 168.9		7.754							
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.917	7.870	0.047		31603533	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0		7.871				ND			
30 Perfluorotridecanoic acid									
663.0 > 618.9		7.895				ND			
33 Perfluorotetradecanoic acid									
712.9 > 668.8		8.027				ND			
712.9 > 169.0		8.027							

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

Report Date: 08-Jul-2016 09:15:04 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07039.d

Injection Date: 07-Jul-2016 14:03:03 Instrument ID: LC_LCMS5

Lims ID: MB 280-332389/1-A

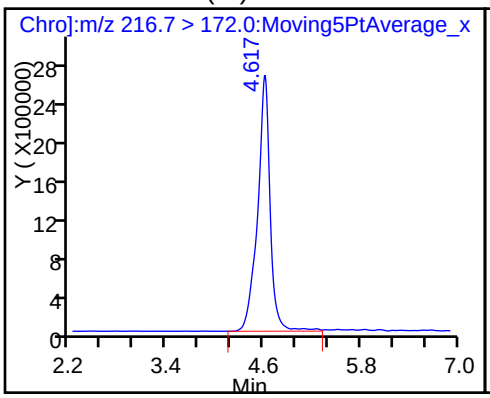
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 4

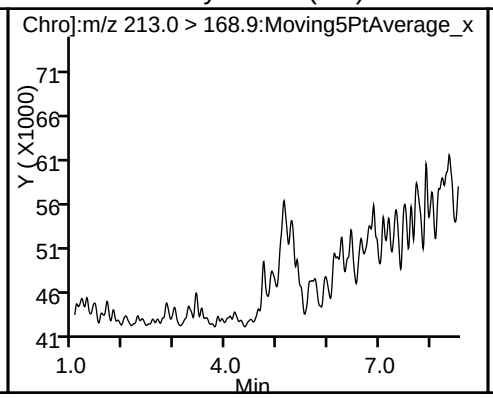
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

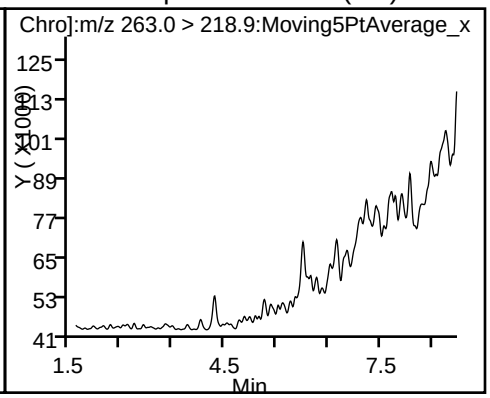
* 1 13C4 PFBA (IS)



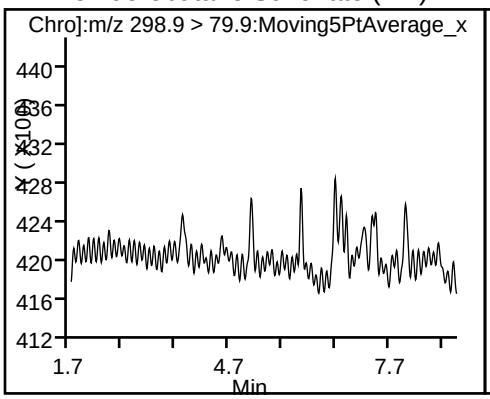
2 Perfluorobutyric acid (ND)



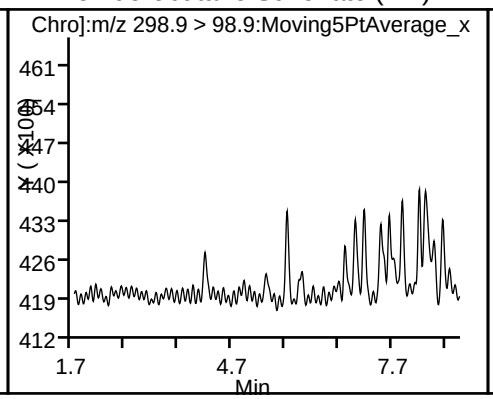
3 Perfluoropentanoic acid (ND)



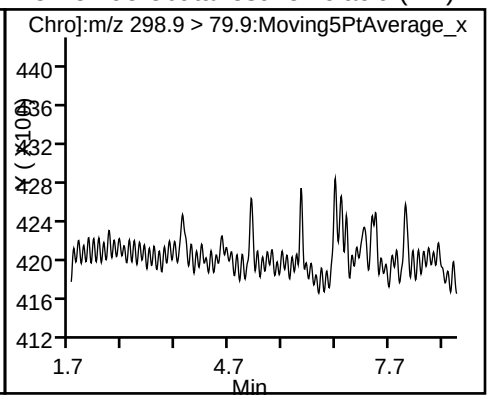
4 Perfluorobutane Sulfonate (ND)



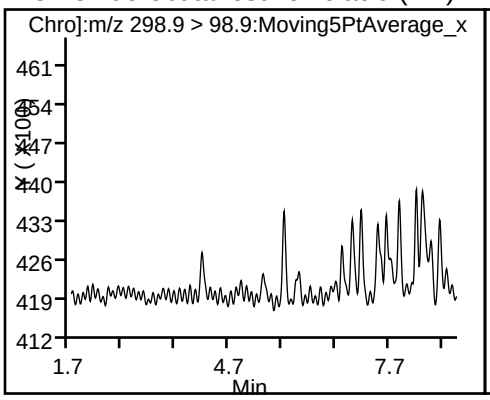
4 Perfluorobutane Sulfonate (ND)



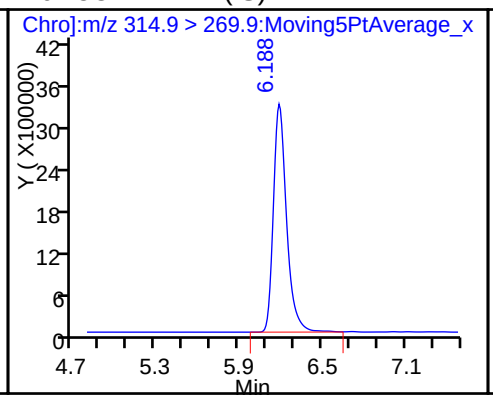
5 Perfluorobutanesulfonic acid (ND)



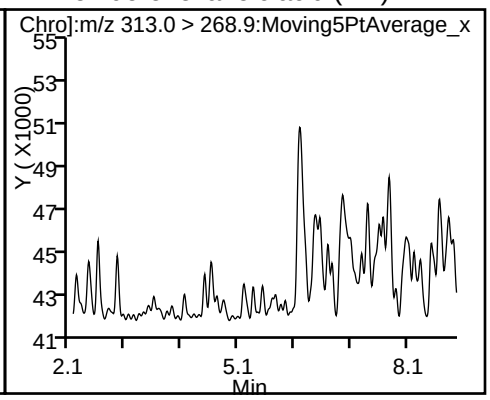
5 Perfluorobutanesulfonic acid (ND)



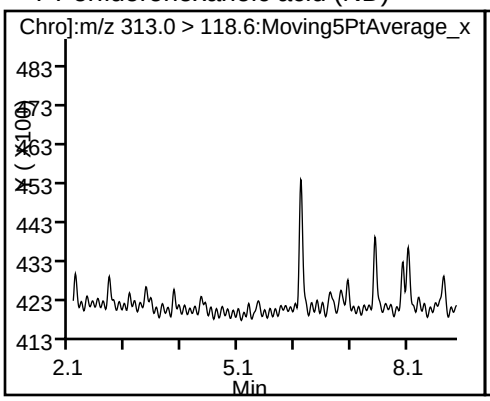
* 6 13C2 PFHxA (IS)



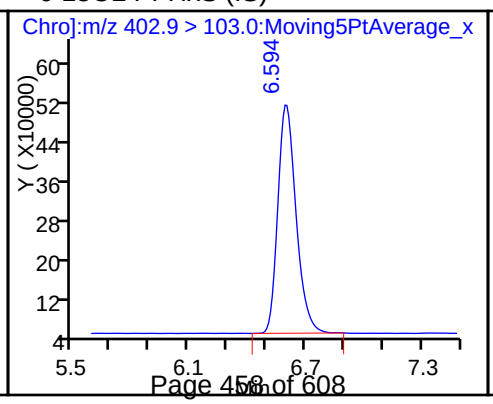
7 Perfluorohexanoic acid (ND)



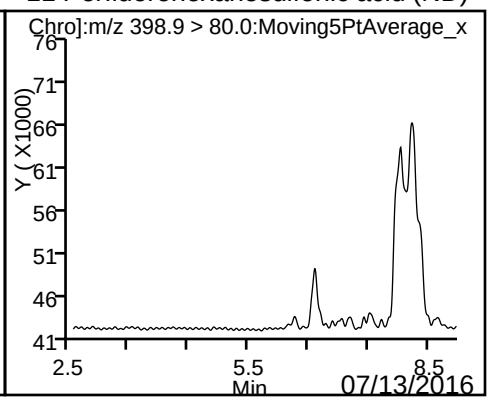
7 Perfluorohexanoic acid (ND)



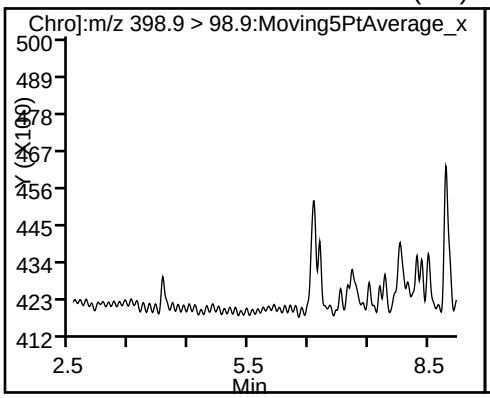
* 9 18O2 PFHxS (IS)



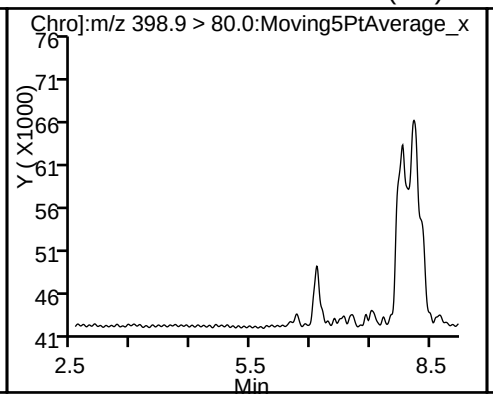
11 Perfluorohexanesulfonic acid (ND)



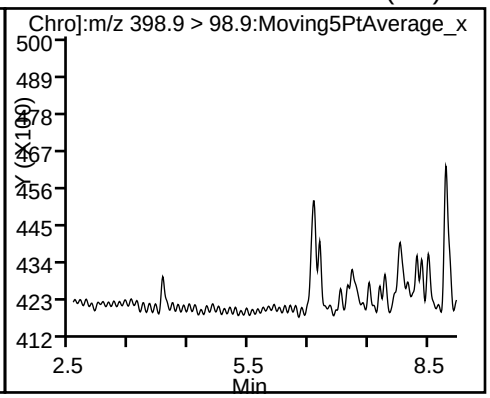
11 Perfluorohexanesulfonic acid (ND)



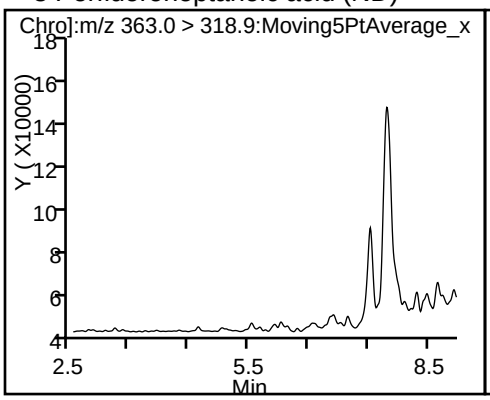
10 Perfluorohexane Sulfonate (ND)



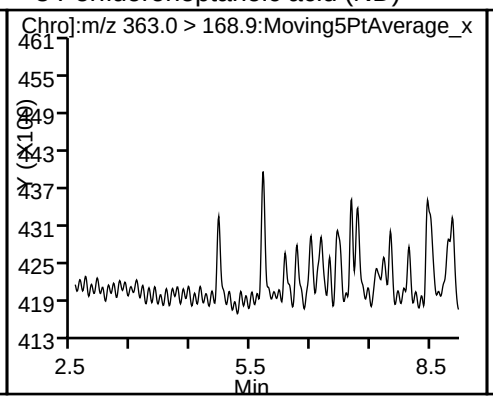
10 Perfluorohexane Sulfonate (ND)



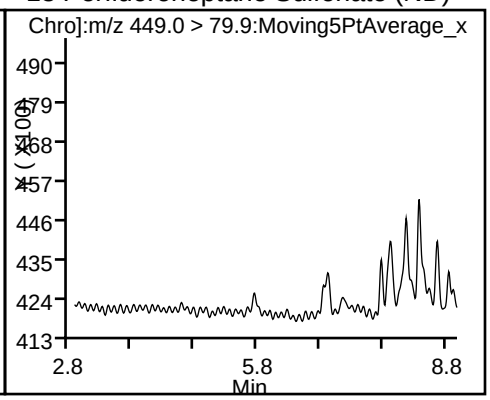
8 Perfluoroheptanoic acid (ND)



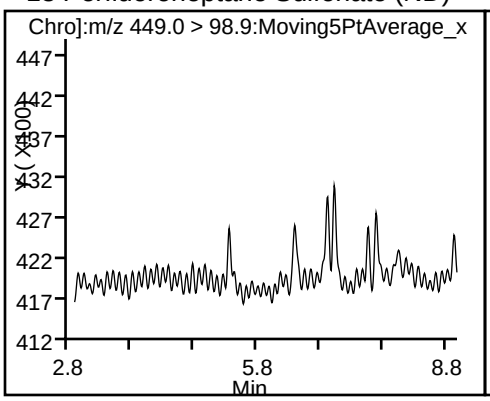
8 Perfluoroheptanoic acid (ND)



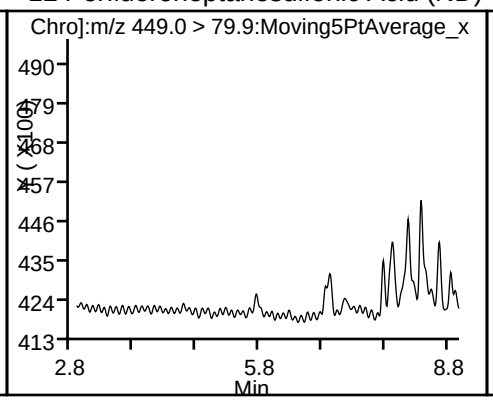
13 Perfluoroheptane Sulfonate (ND)



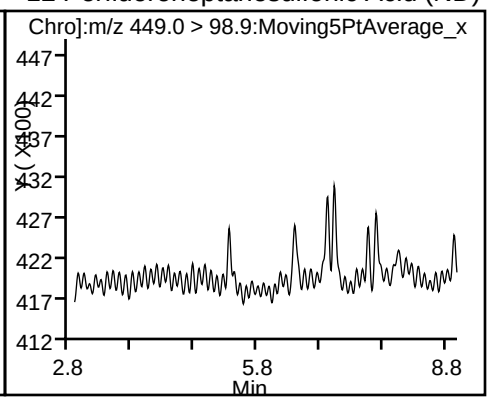
13 Perfluoroheptane Sulfonate (ND)



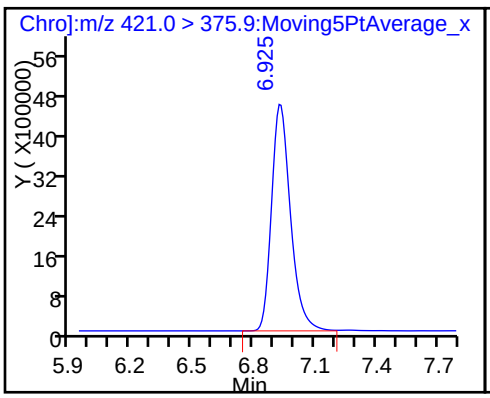
12 Perfluoroheptanesulfonic Acid (ND)



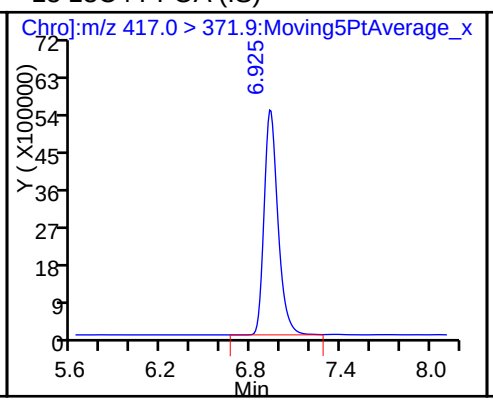
12 Perfluoroheptanesulfonic Acid (ND)



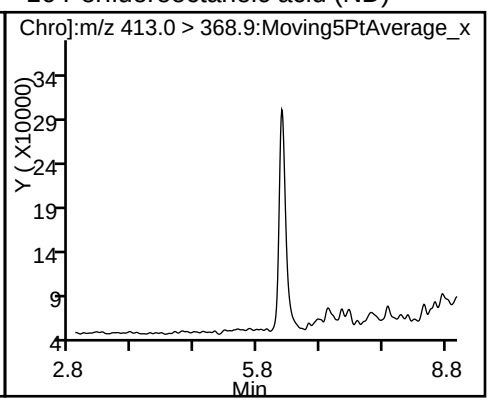
$ 14 13C8 PFOA



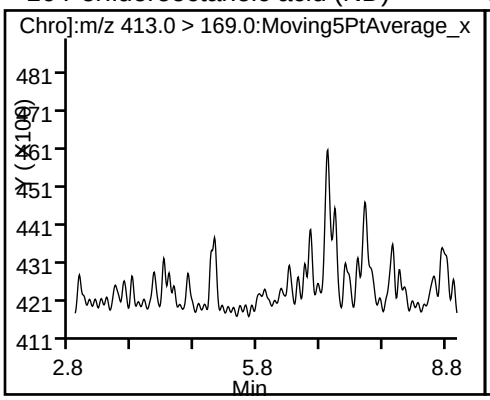
* 15 13C4 PFOA (IS)



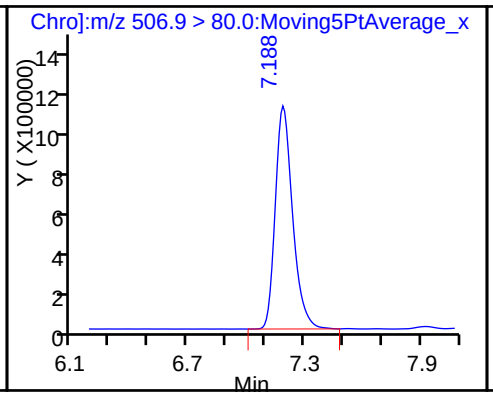
16 Perfluorooctanoic acid (ND)



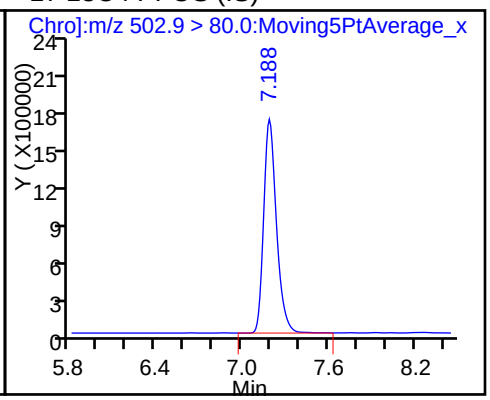
16 Perfluorooctanoic acid (ND)



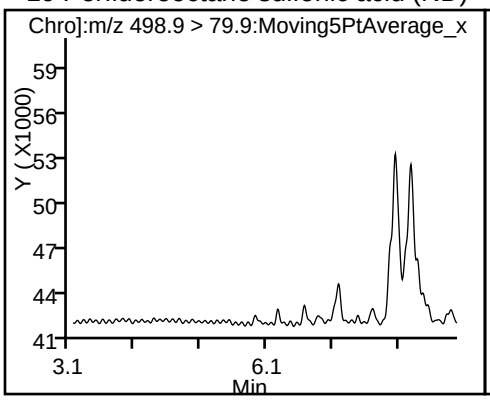
$ 18 13C8 PFOS



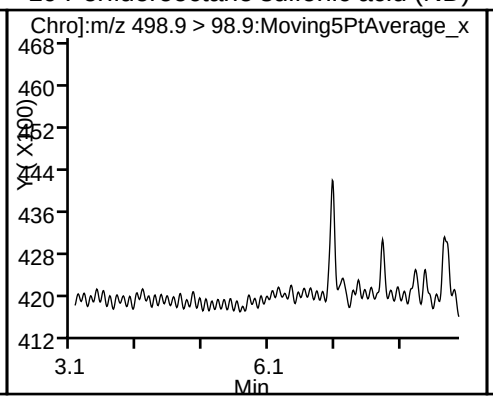
* 17 13C4 PFOS (IS)



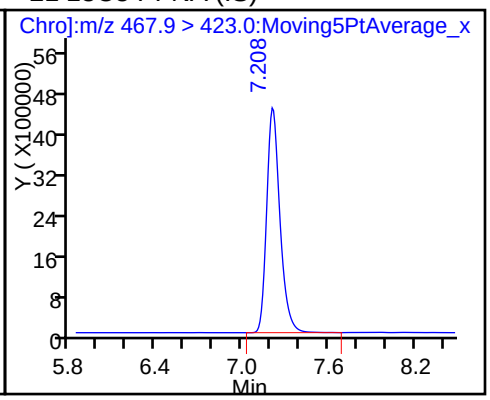
19 Perfluorooctane sulfonic acid (ND)



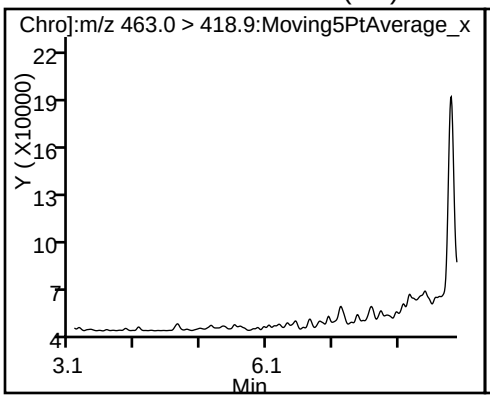
19 Perfluorooctane sulfonic acid (ND)



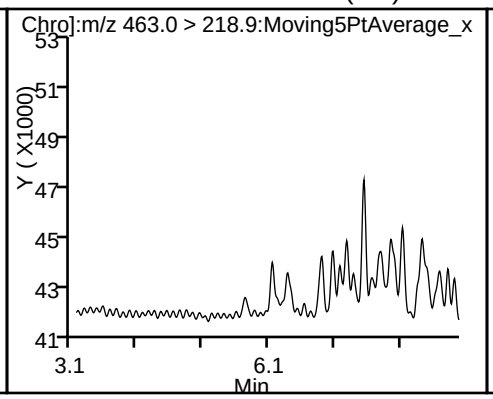
* 21 13C5 PFNA (IS)



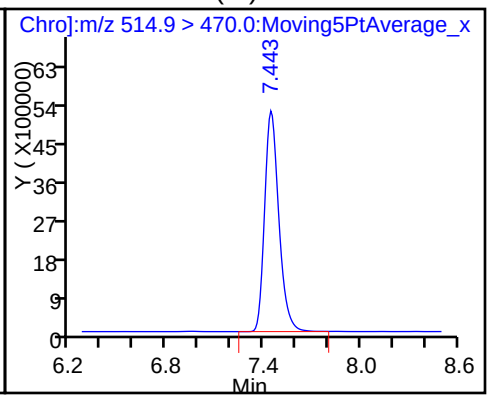
20 Perfluorononanoic acid (ND)



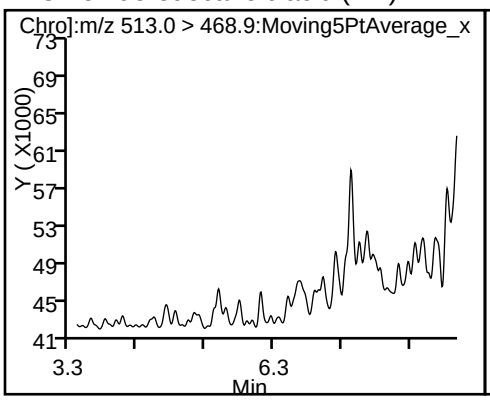
20 Perfluorononanoic acid (ND)



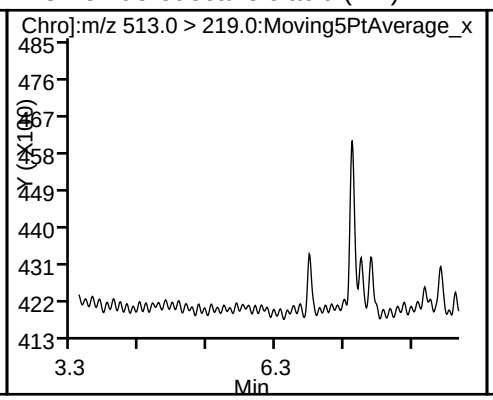
* 22 13C2 PFDA (IS)



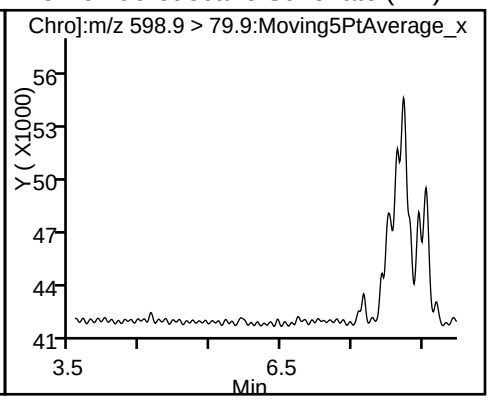
23 Perfluorodecanoic acid (ND)



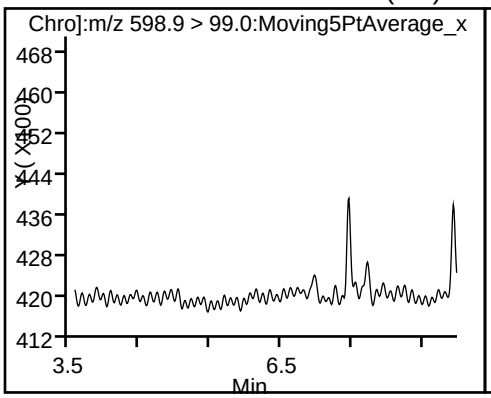
23 Perfluorodecanoic acid (ND)



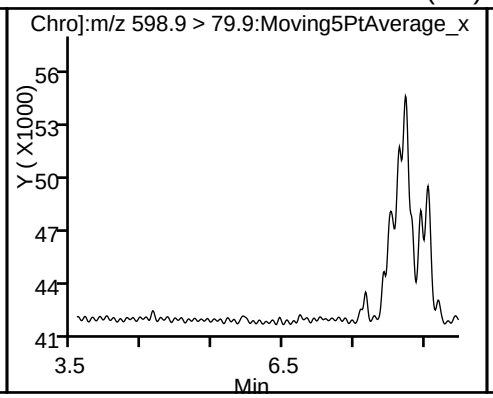
25 Perfluorodecane Sulfonate (ND)



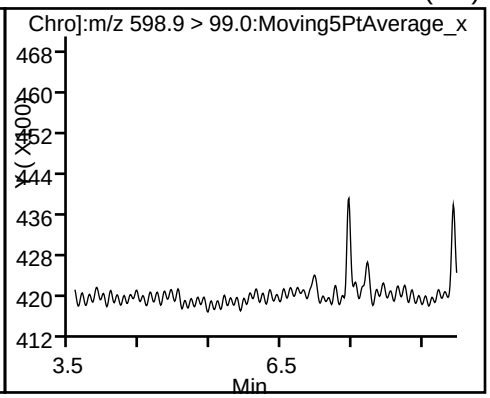
25 Perfluorodecane Sulfonate (ND)



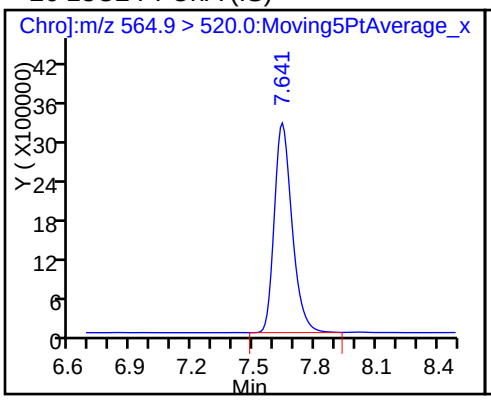
24 Perfluorodecane Sulfonic acid (ND)



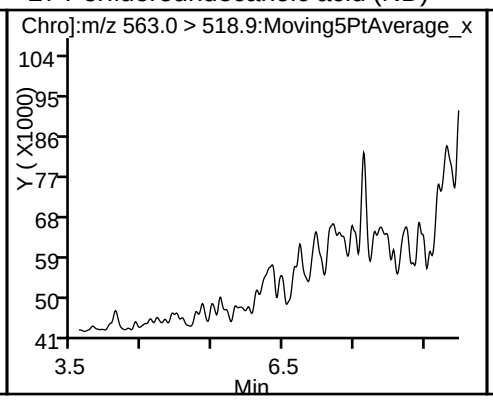
24 Perfluorodecane Sulfonic acid (ND)



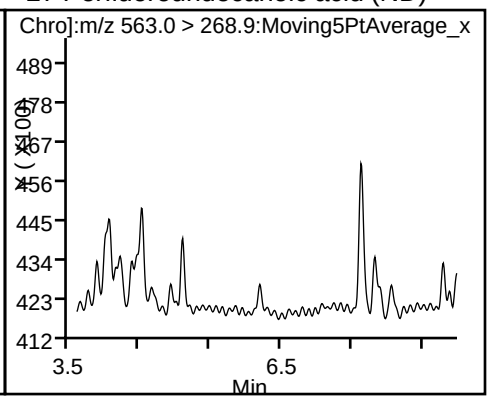
* 26 13C2 PFUnA (IS)



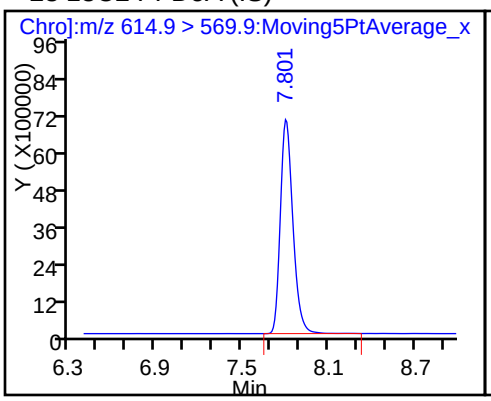
27 Perfluoroundecanoic acid (ND)



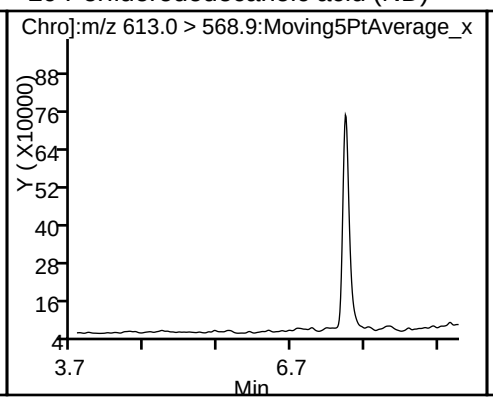
27 Perfluoroundecanoic acid (ND)



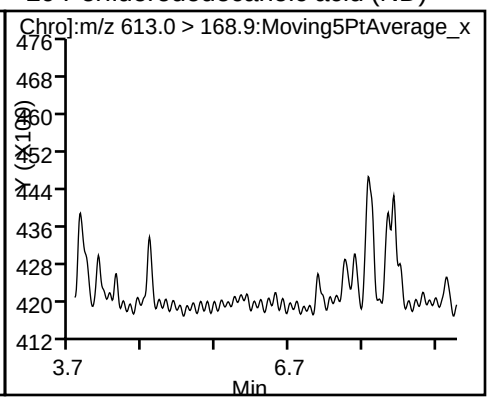
* 28 13C2 PFDoA (IS)



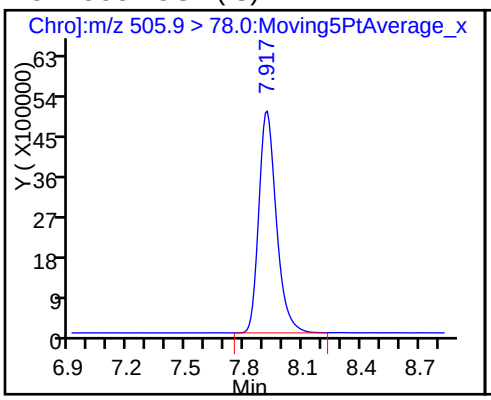
29 Perfluorododecanoic acid (ND)



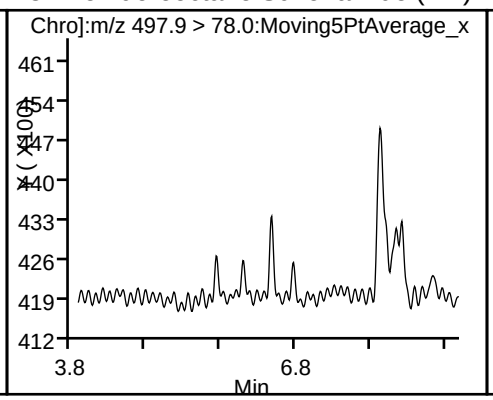
29 Perfluorododecanoic acid (ND)



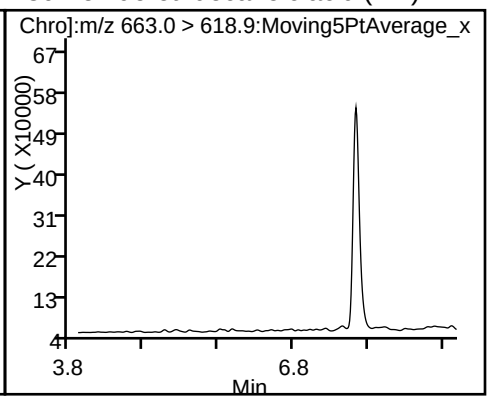
* 31 13C8 FOSA (IS)



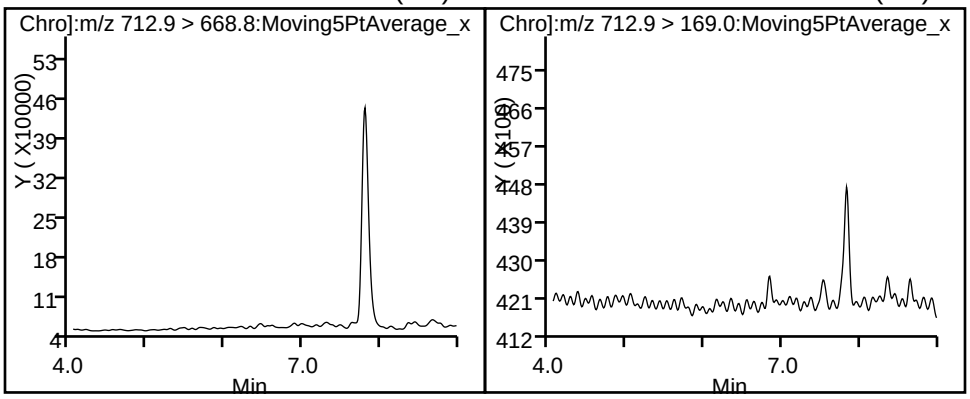
32 Perfluorooctane Sulfonamide (ND)



30 Perfluorotridecanoic acid (ND)



33 Perfluorotetradecanoic acid (ND) 33 Perfluorotetradecanoic acid (ND)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 280-332390/1-A

Matrix: Solid | Lab File ID: PC516G08015.d

Analysis Method: DV-LC-0012 | Date Collected:

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10(g) | Date Analyzed: 07/08/2016 14:27

Con. Extract Vol.: 20(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 333083 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.14	U	0.80	0.14
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.12	U	0.80	0.12
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.28	U	0.80	0.28
375-95-1	Perfluorononanoic acid (PFNA)	0.22	U	0.80	0.22
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.14	U	0.80	0.14
335-67-1	Perfluorooctanoic acid (PFOA)	0.23	U	0.80	0.23

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	108		57-153
STL01054	13C8 PFOS	101		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08015.d
Lims ID: MB 280-332390/1-A
Client ID:
Sample Type: MB
Inject. Date: 08-Jul-2016 14:27:22 ALS Bottle#: 0 Worklist Smp#: 10
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: MB 280-332390/1-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 11-Jul-2016 11:14:20 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK031

First Level Reviewer: fiedlerh Date: 11-Jul-2016 10:50:58

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.323	4.266	0.057		26841603	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9		4.266				ND			
3 Perfluoropentanoic acid									
263.0 > 218.9		5.261				ND			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.374				ND			
298.9 > 98.9		5.374							
5 Perfluorobutanesulfonic acid									
298.9 > 79.9		5.374				ND			
298.9 > 98.9		5.374							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.913	5.847	0.066		20894261	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9		5.847				ND			
313.0 > 118.6		5.847							
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.282				ND			
363.0 > 168.9		6.282							
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.319	6.282	0.037		2670992	9.46			
10 Perfluorohexane Sulfonate									
398.9 > 80.0		6.282				ND			
398.9 > 98.9		6.282							
11 Perfluorohexanesulfonic acid									
398.9 > 80.0		6.282				ND			
398.9 > 98.9		6.282							

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9		6.621				ND			
449.0 > 98.9		6.621							
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9		6.621				ND			
449.0 > 98.9		6.621							
16 Perfluorooctanoic acid									
413.0 > 368.9		6.632				ND			
413.0 > 169.0		6.632							
$ 14 13C8 PFOA									
421.0 > 375.9	6.669	6.631	0.038	1.000	28756705	10.6			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.669	6.631	0.038		33523497	10.0			
$ 18 13C8 PFOS									
506.9 > 80.0	6.932	6.903	0.029	1.000	5626663	9.40			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.932	6.913	0.019		9355418	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9		6.904				ND			
498.9 > 98.9		6.904							
20 Perfluorononanoic acid									
463.0 > 418.9		6.933				ND			
463.0 > 218.9		6.933							
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.952	6.933	0.019		25925451	10.0			
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.206	7.177	0.029		27415338	10.0			
23 Perfluorodecanoic acid									
513.0 > 468.9		7.187				ND			
513.0 > 219.0		7.187							
25 Perfluorodecane Sulfonate									
598.9 > 79.9		7.375				ND			
598.9 > 99.0		7.375							
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9		7.375				ND			
598.9 > 99.0		7.375							
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.423	7.395	0.028		16383053	10.0			
27 Perfluoroundecanoic acid									
563.0 > 518.9		7.395				ND			
563.0 > 268.9		7.395							
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.611	7.583	0.028		34023996	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9		7.583				ND			
613.0 > 168.9		7.583							
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.624	7.605	0.019		27217782	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0		7.605				ND			
30 Perfluorotridecanoic acid									
663.0 > 618.9		7.744				ND			
33 Perfluorotetradecanoic acid									
712.9 > 668.8		7.876				ND			
712.9 > 169.0		7.876							

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

Report Date: 11-Jul-2016 11:14:44 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08015.d

Injection Date: 08-Jul-2016 14:27:22 Instrument ID: LC_LCMS5

Lims ID: MB 280-332390/1-A

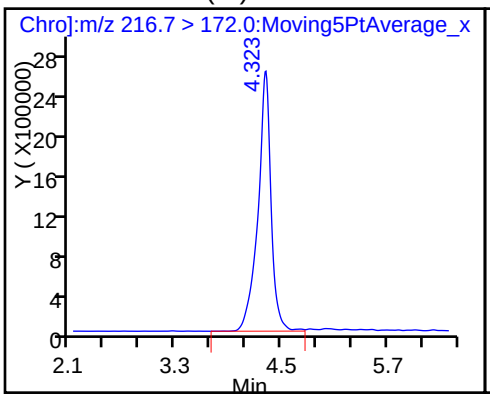
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 10

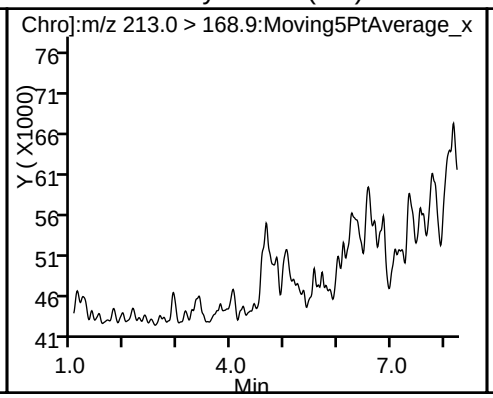
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

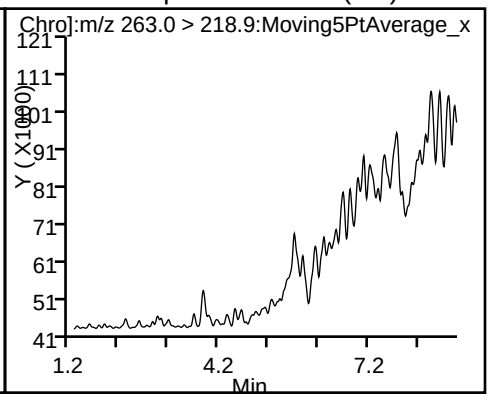
* 1 13C4 PFBA (IS)



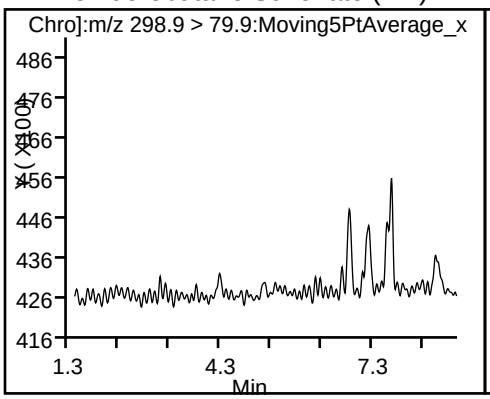
2 Perfluorobutyric acid (ND)



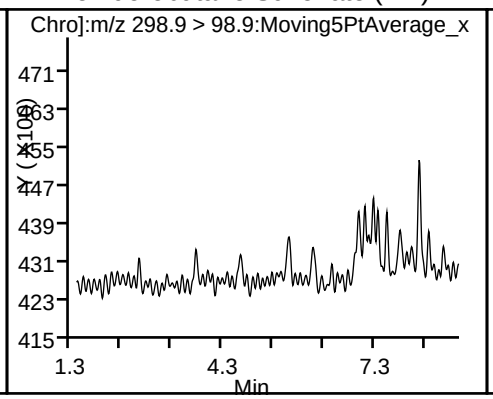
3 Perfluoropentanoic acid (ND)



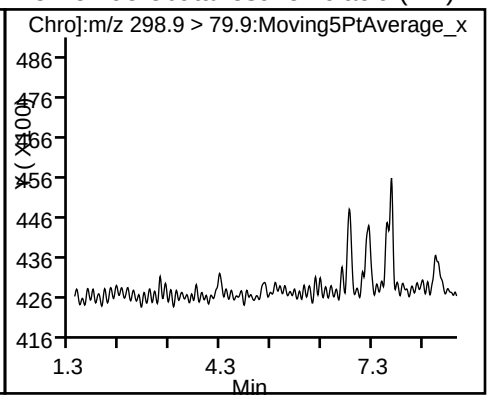
4 Perfluorobutane Sulfonate (ND)



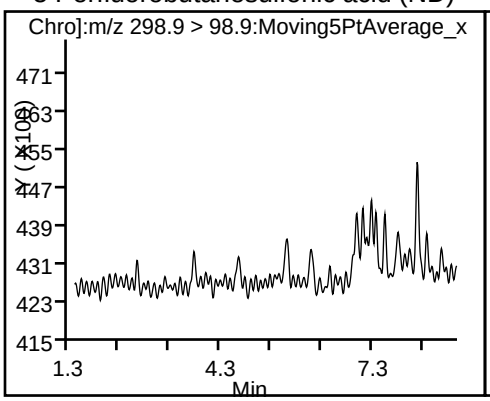
4 Perfluorobutane Sulfonate (ND)



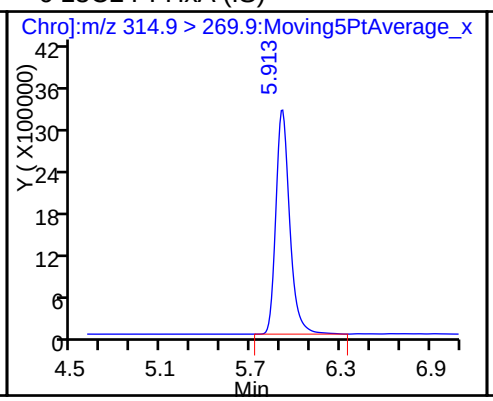
5 Perfluorobutanesulfonic acid (ND)



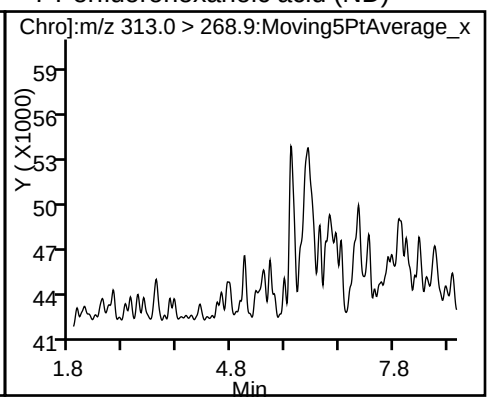
5 Perfluorobutanesulfonic acid (ND)



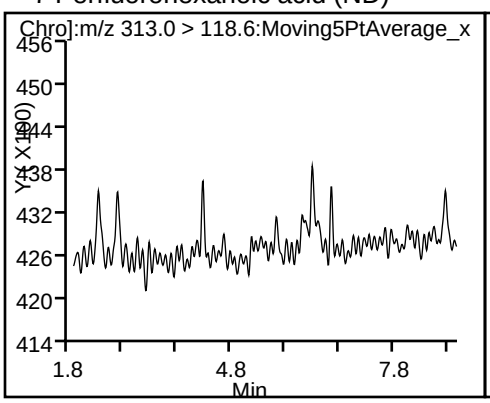
* 6 13C2 PFHxA (IS)



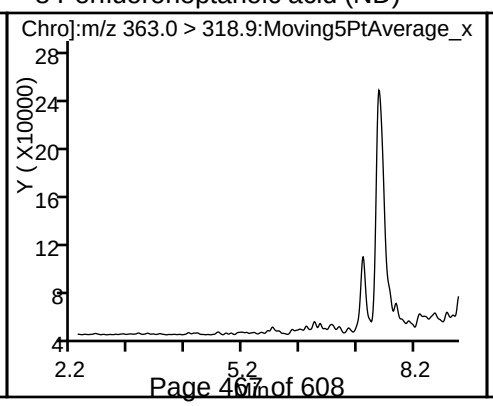
7 Perfluorohexanoic acid (ND)



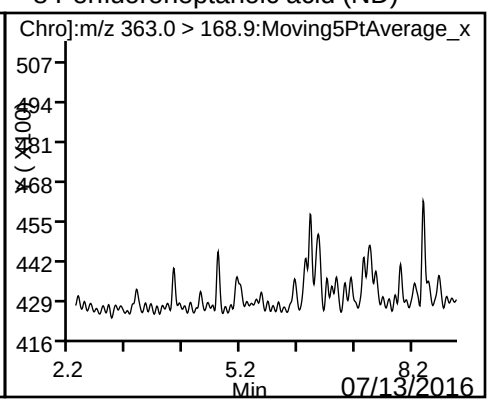
7 Perfluorohexanoic acid (ND)



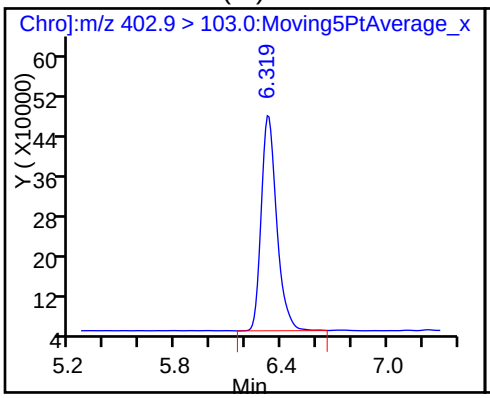
8 Perfluoroheptanoic acid (ND)



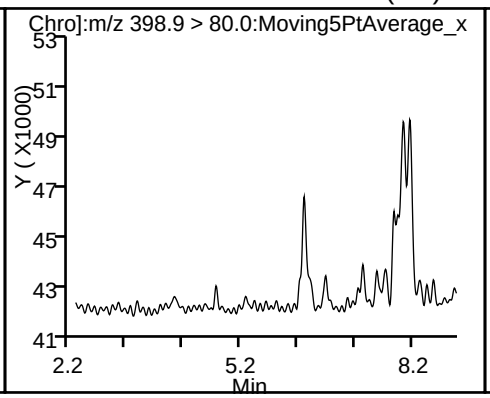
8 Perfluoroheptanoic acid (ND)



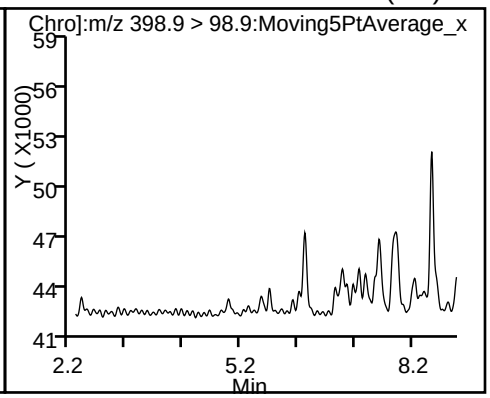
* 9 18O2 PFHxS (IS)



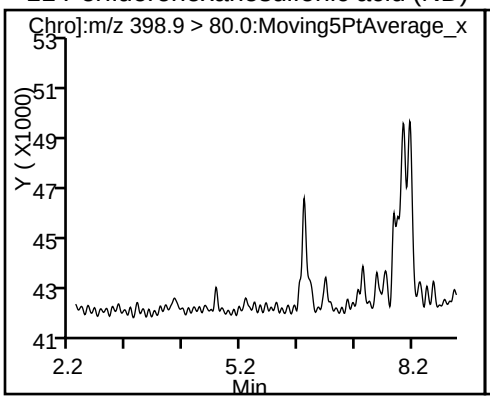
10 Perfluorohexane Sulfonate (ND)



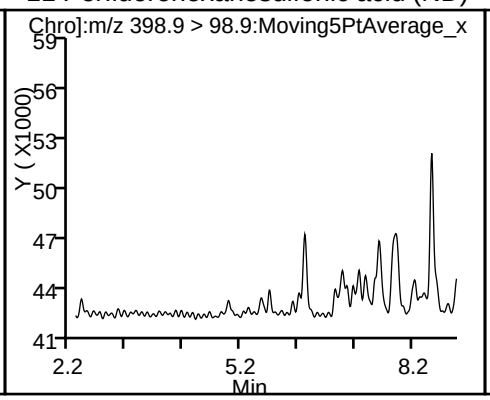
10 Perfluorohexane Sulfonate (ND)



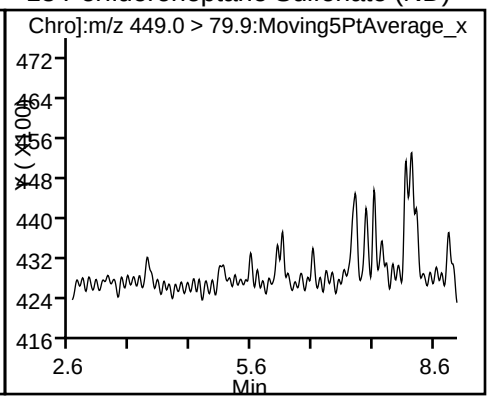
11 Perfluorohexanesulfonic acid (ND)



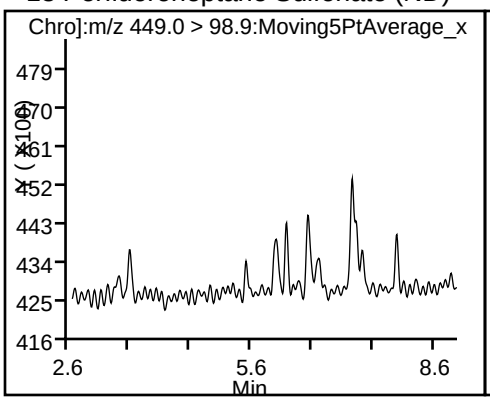
11 Perfluorohexanesulfonic acid (ND)



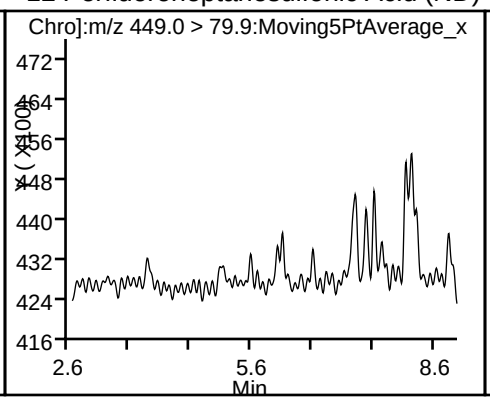
13 Perfluoroheptane Sulfonate (ND)



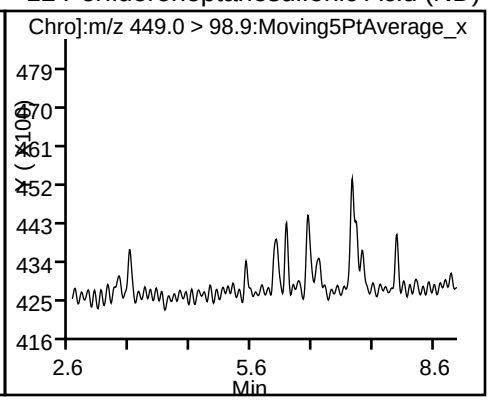
13 Perfluoroheptane Sulfonate (ND)



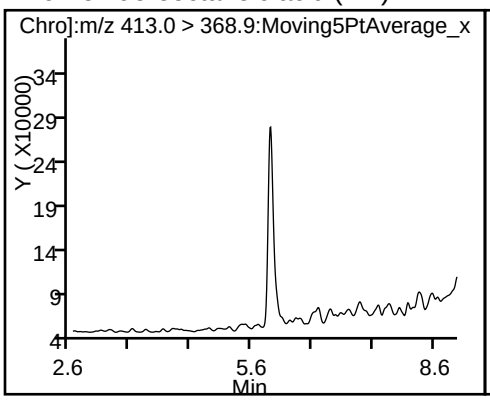
12 Perfluoroheptanesulfonic Acid (ND)



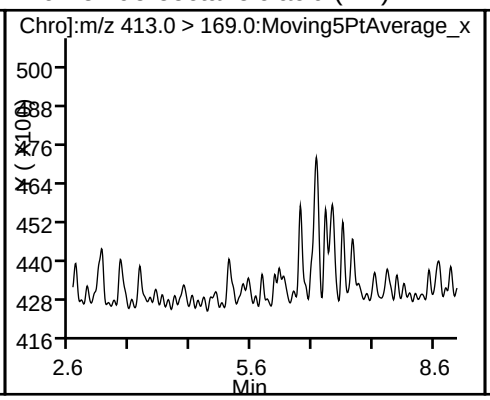
12 Perfluoroheptanesulfonic Acid (ND)



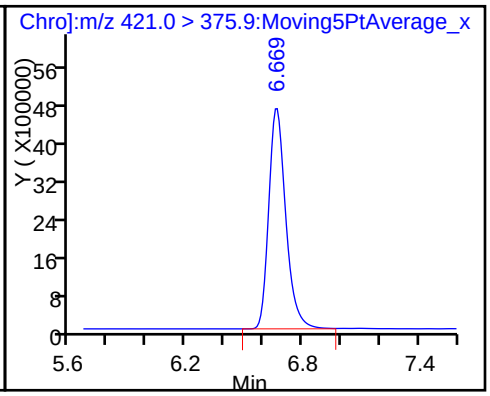
16 Perfluorooctanoic acid (ND)



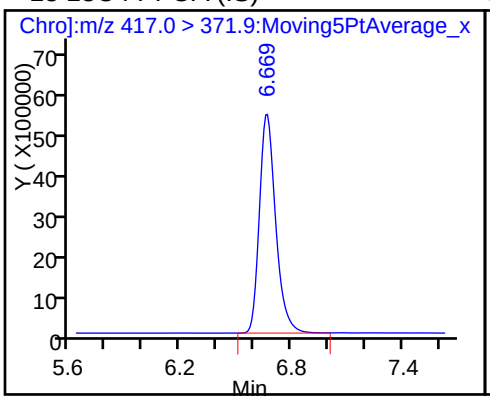
16 Perfluorooctanoic acid (ND)



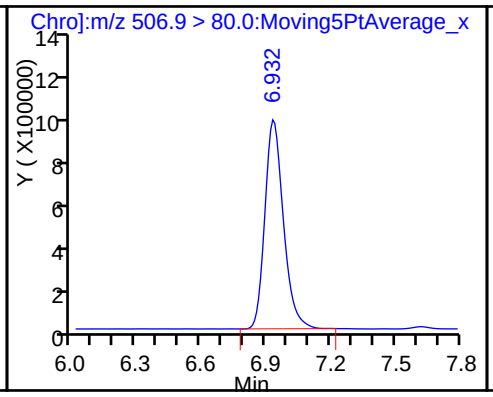
$ 14 13C8 PFOA



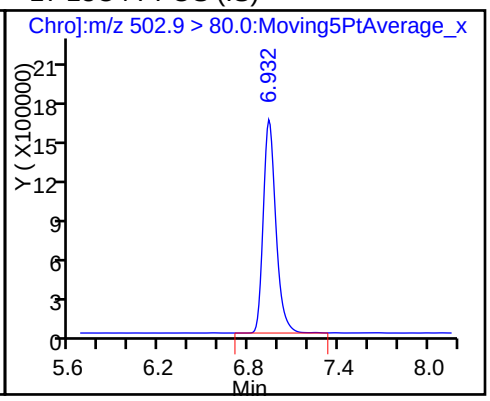
* 15 13C4 PFOA (IS)



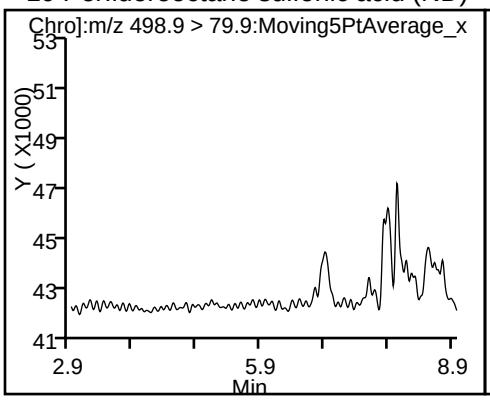
$ 18 13C8 PFOS



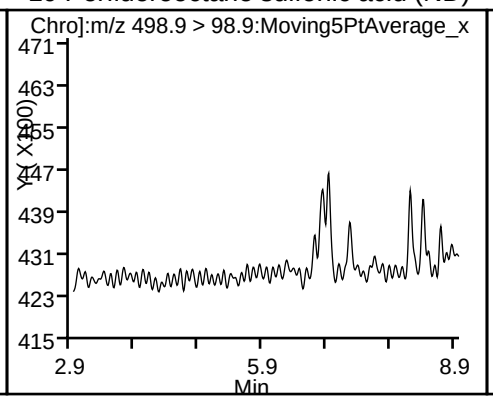
* 17 13C4 PFOS (IS)



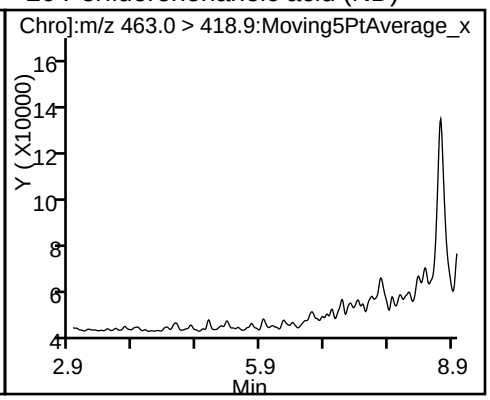
19 Perfluorooctane sulfonic acid (ND)



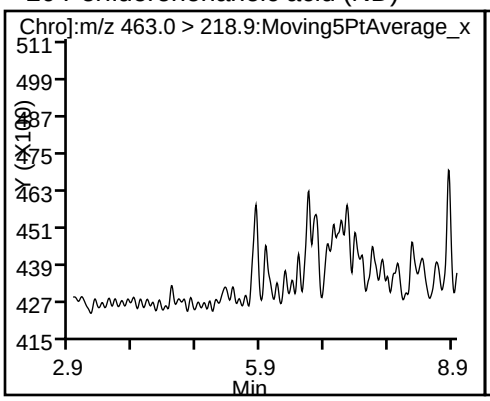
19 Perfluorooctane sulfonic acid (ND)



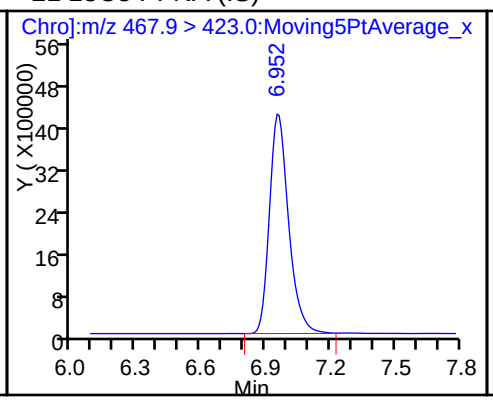
20 Perfluorononanoic acid (ND)



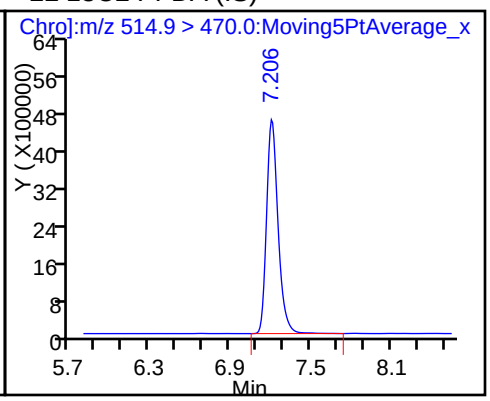
20 Perfluorononanoic acid (ND)



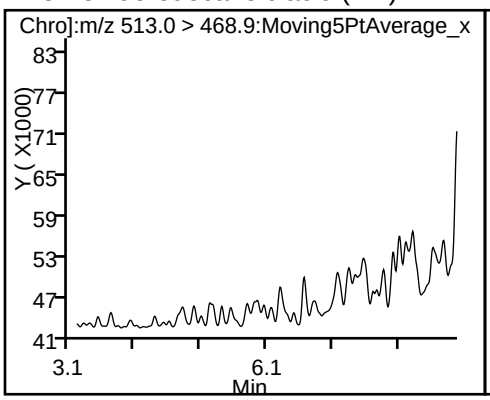
* 21 13C5 PFNA (IS)



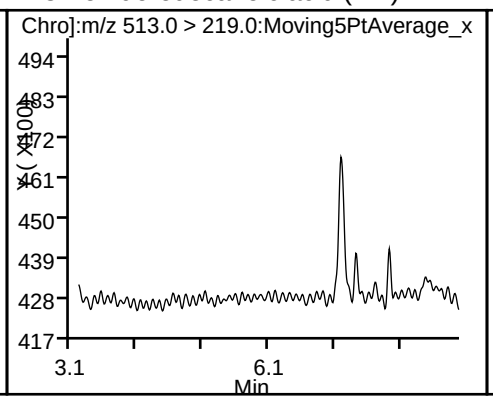
* 22 13C2 PFDA (IS)



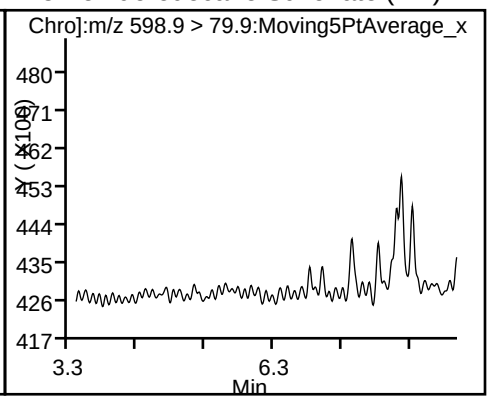
23 Perfluorodecanoic acid (ND)



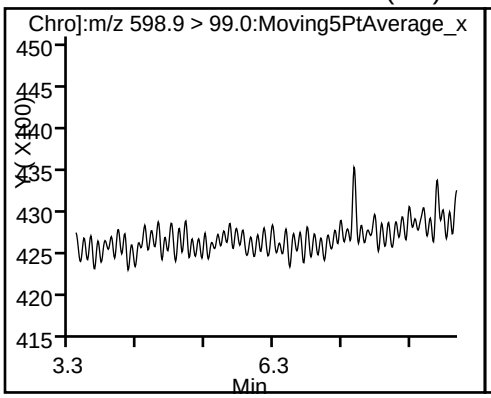
23 Perfluorodecanoic acid (ND)



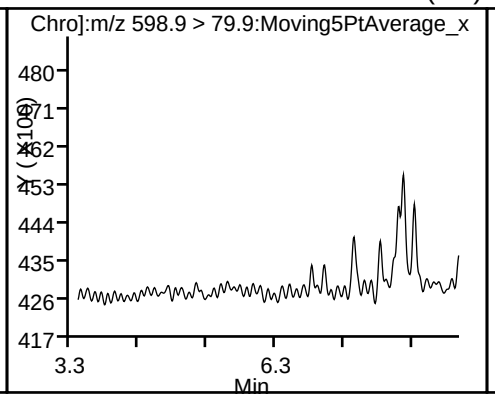
25 Perfluorodecane Sulfonate (ND)



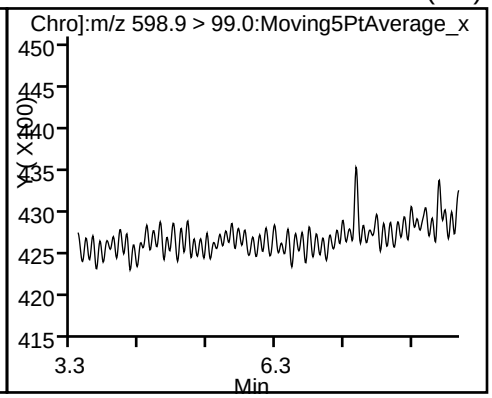
25 Perfluorodecane Sulfonate (ND)



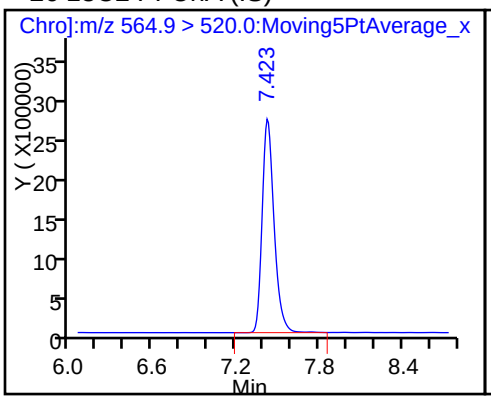
24 Perfluorodecane Sulfonic acid (ND)



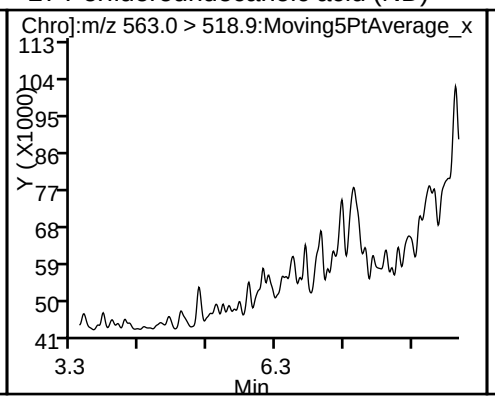
24 Perfluorodecane Sulfonic acid (ND)



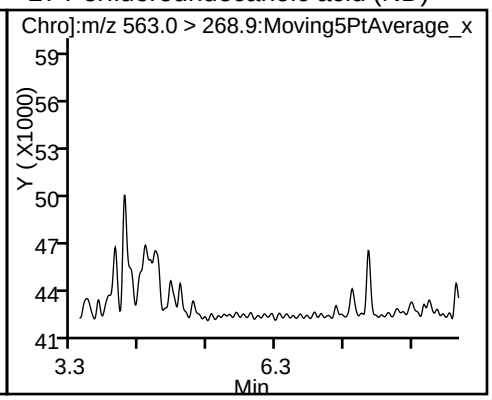
* 26 13C2 PFUnA (IS)



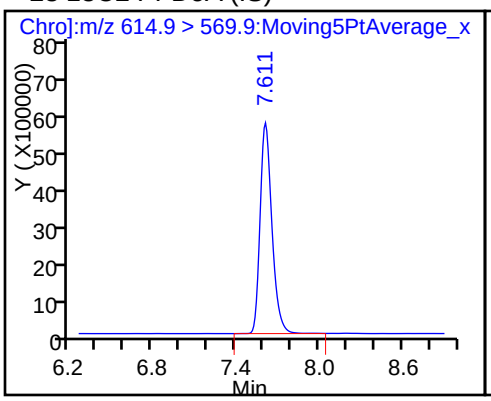
27 Perfluoroundecanoic acid (ND)



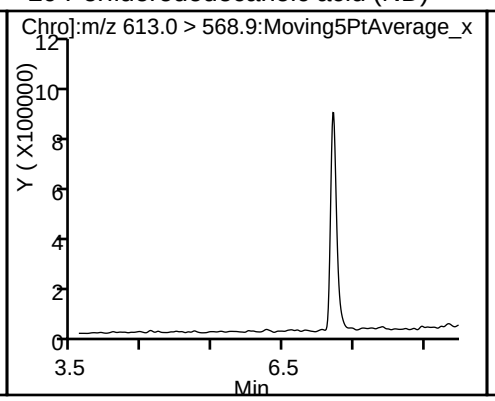
27 Perfluoroundecanoic acid (ND)



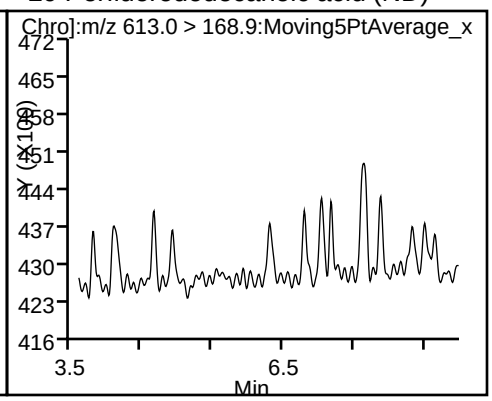
* 28 13C2 PFDoA (IS)



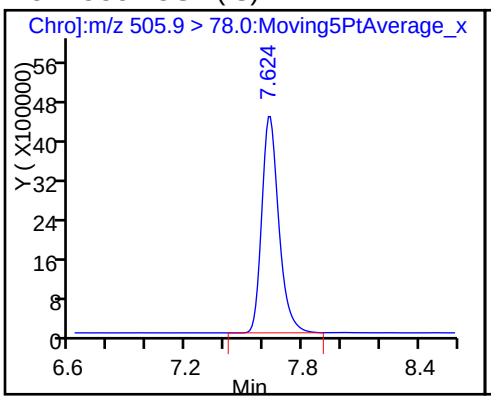
29 Perfluorododecanoic acid (ND)



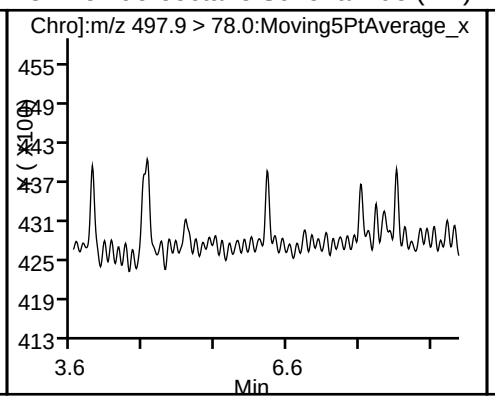
29 Perfluorododecanoic acid (ND)



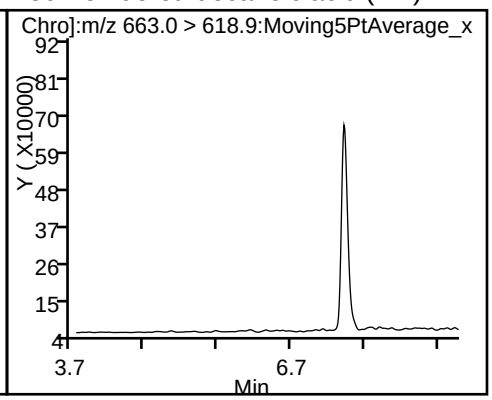
* 31 13C8 FOSA (IS)



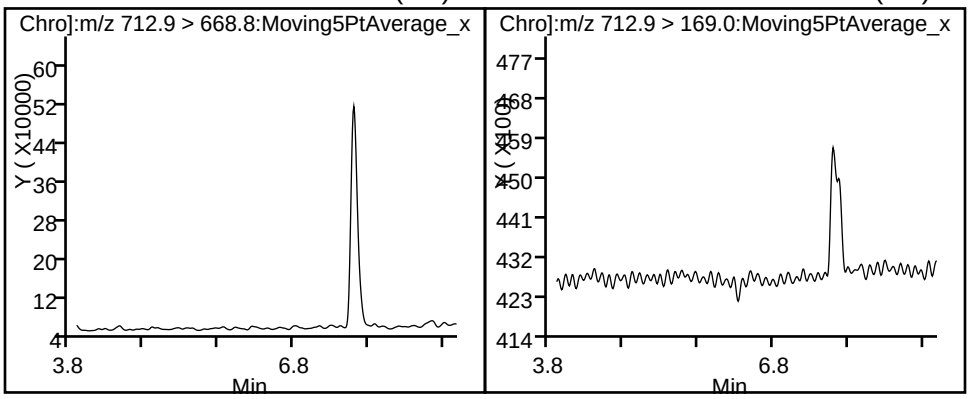
32 Perfluorooctane Sulfonamide (ND)



30 Perfluorotridecanoic acid (ND)



33 Perfluorotetradecanoic acid (ND) 33 Perfluorotetradecanoic acid (ND)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: | Lab Sample ID: LCS 280-332379/2-A

Matrix: Water | Lab File ID: PC516G07062.d

Analysis Method: DV-LC-0012 | Date Collected:

Extraction Method: 3535 | Date Extracted: 07/05/2016 12:12

Sample wt/vol: 250(mL) | Date Analyzed: 07/07/2016 18:46

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 332793 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.141		0.020	0.0082
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.191		0.030	0.013
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.170		0.030	0.0070
375-95-1	Perfluorononanoic acid (PFNA)	0.172		0.040	0.017
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.155		0.030	0.013
335-67-1	Perfluorooctanoic acid (PFOA)	0.187		0.020	0.0098

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	100		60-155
STL01054	13C8 PFOS	97		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07062.d
Lims ID: LCS 280-332379/2-A
Client ID:
Sample Type: LCS
Inject. Date: 07-Jul-2016 18:46:15 ALS Bottle#: 0 Worklist Smp#: 27
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: LCS 280-332379/2-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 08-Jul-2016 09:16:52 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK002

First Level Reviewer: fiedlerh Date: 08-Jul-2016 08:21:00

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.408	4.522	-0.114		35664011	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	4.409	4.522	-0.113	1.000	33383515	8.73			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.393	5.488	-0.095	0.908	25737147	9.63			
4 Perfluorobutane Sulfonate									R
298.9 > 79.9	5.507	5.592	-0.085	0.867	10919269	7.05			R
298.9 > 98.9	5.507	5.592	-0.085	0.867	3199155		3.41(1.80-3.35)		
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.507	5.592	-0.085	0.867	10919269	7.05			
298.9 > 98.9	5.507	5.592	-0.085	0.867	3199155		3.41(2.57-2.57)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.942	6.027	-0.085		22708063	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.942	6.027	-0.085	1.000	19325384	9.00			
313.0 > 118.6	5.942	6.027	-0.085	1.000	554202		34.87(34.05-63.23)		
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.348	6.433	-0.085	1.000	9774616	8.51			
398.9 > 98.9	6.348	6.433	-0.085	1.000	3382107		2.89(1.85-1.85)		
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.348	6.433	-0.085	1.000	9774616	8.51			R
398.9 > 98.9	6.348	6.433	-0.085	1.000	3382107		2.89(1.30-2.41)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.349	6.434	-0.085	0.951	28385096	9.55			
363.0 > 168.9	6.349	6.434	-0.085	0.951	7433956		3.82(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.348	6.433	-0.085		2804683	9.46			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.669	6.763	-0.094	0.959	10604375	7.95			
449.0 > 98.9	6.669	6.763	-0.094	0.959	3238796		3.27(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.669	6.763	-0.094	0.959	10604375	7.95			
449.0 > 98.9	6.669	6.763	-0.094	0.959	3238796		3.27(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.678	6.773	-0.095	1.000	27517873	9.96			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.679	6.773	-0.094		34171982	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.679	6.774	-0.095	1.000	33227761	9.33			
413.0 > 169.0	6.679	6.774	-0.095	1.000	10230815		3.25(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.951	7.036	-0.085	1.000	6212130	9.23			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.951	7.036	-0.085		10525662	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.951	7.037	-0.086	1.000	10007935	7.74			R
498.9 > 98.9	6.951	7.037	-0.086	1.000	3923920		2.55(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.971	7.056	-0.085		27086938	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.981	7.056	-0.075	1.001	26119045	8.59			
463.0 > 218.9	6.971	7.056	-0.085	1.000	3893029		6.71(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.225	7.301	-0.076		28572422	10.0			
23 Perfluorodecanoic acid									R
513.0 > 468.9	7.225	7.301	-0.076	1.000	25154682	8.73			R
513.0 > 219.0	7.225	7.301	-0.076	1.000	2488814		10.11(10.49-19.48)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.404	7.479	-0.075	1.065	8800296	6.45			
598.9 > 99.0	7.404	7.479	-0.075	1.065	2851996		3.09(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.404	7.479	-0.075	1.065	8800296	6.45			
598.9 > 99.0	7.404	7.479	-0.075	1.065	2851996		3.09(2.84-2.84)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.432	7.508	-0.076		17319237	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.433	7.508	-0.075	1.000	21654024	8.82			R
563.0 > 268.9	7.433	7.508	-0.075	1.000	2647757		8.18(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.611	7.687	-0.076		27448644	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.612	7.687	-0.075	1.000	24606309	8.72			
613.0 > 168.9	7.612	7.687	-0.075	1.000	3453735		7.12(5.96-11.06)		
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.671	7.728	-0.057		638326	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.672	7.729	-0.057	1.000	546366	7.88			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.772	7.848	-0.076	1.021	16642441	6.49			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.904	7.980	-0.076	1.038	12005943	7.40			
712.9 > 169.0	7.904	7.980	-0.076	1.038	1824265		6.58(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

s - Failed ISTD Recovery Test

Report Date: 08-Jul-2016 09:17:01 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07062.d

Injection Date: 07-Jul-2016 18:46:15 Instrument ID: LC_LCMS5

Lims ID: LCS 280-332379/2-A

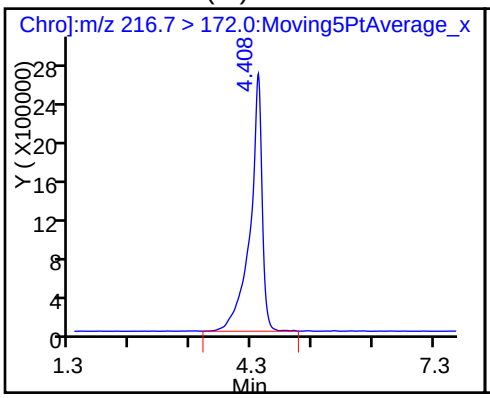
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 27

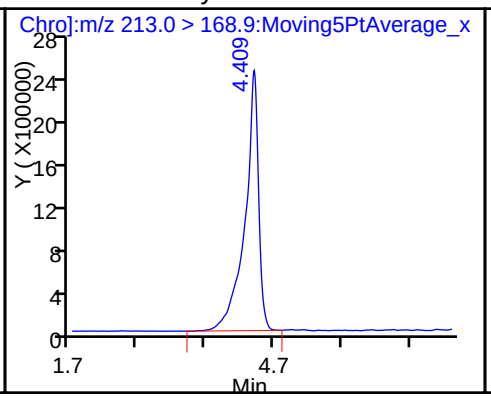
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

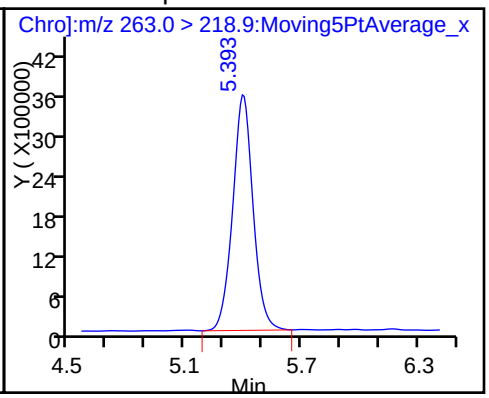
* 1 13C4 PFBA (IS)



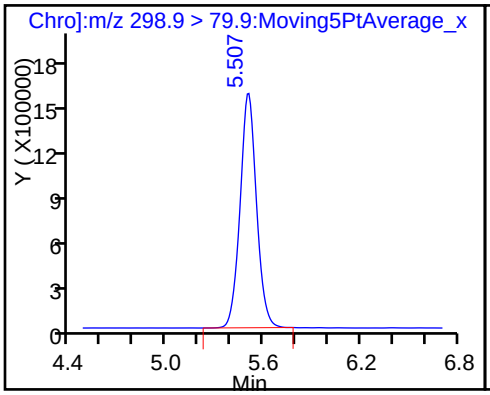
2 Perfluorobutyric acid



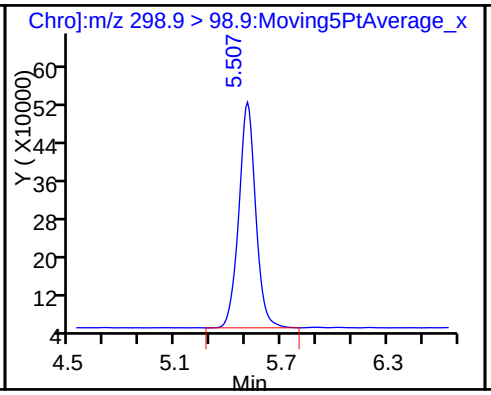
3 Perfluoropentanoic acid



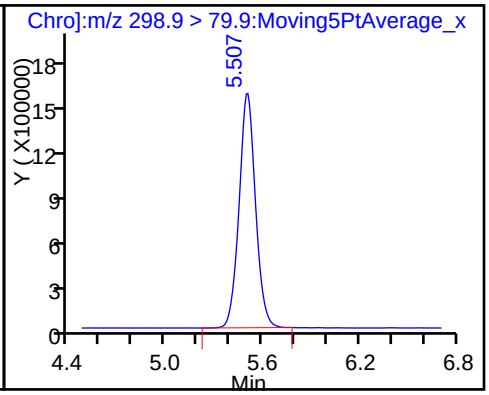
4 Perfluorobutane Sulfonate



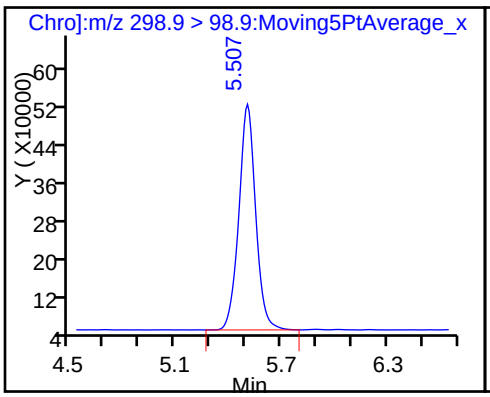
4 Perfluorobutane Sulfonate



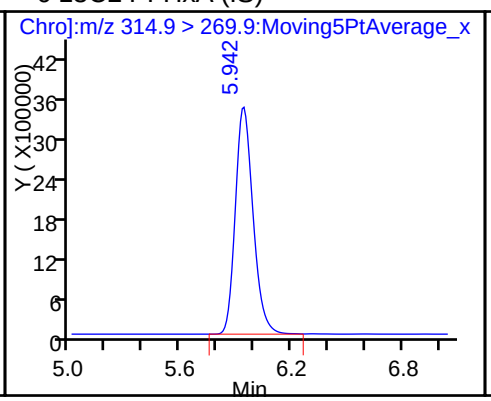
5 Perfluorobutanesulfonic acid



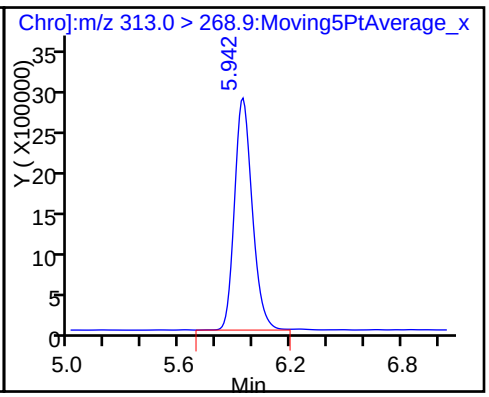
5 Perfluorobutanesulfonic acid



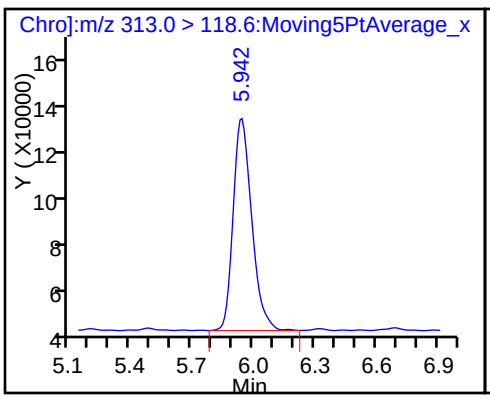
* 6 13C2 PFHxA (IS)



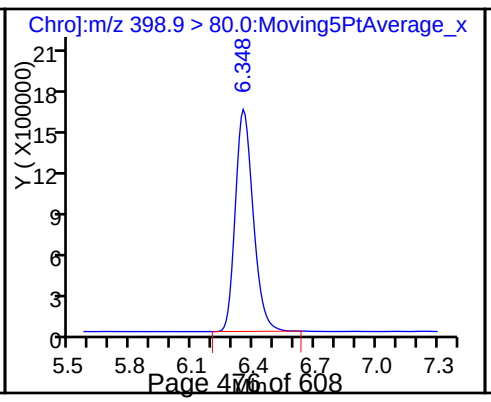
7 Perfluorohexanoic acid



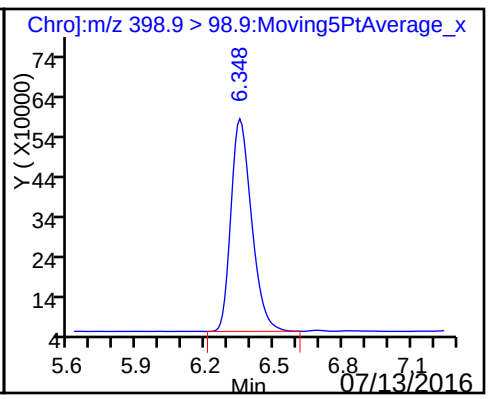
7 Perfluorohexanoic acid



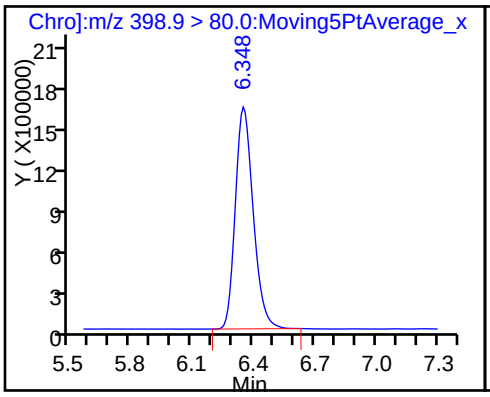
11 Perfluorohexanesulfonic acid



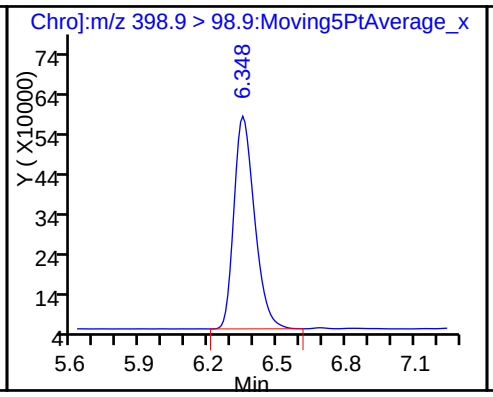
11 Perfluorohexanesulfonic acid



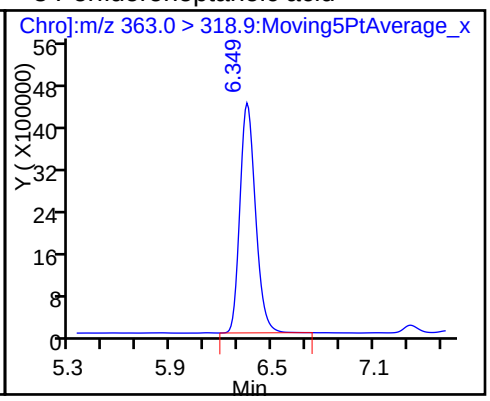
10 Perfluorohexane Sulfonate



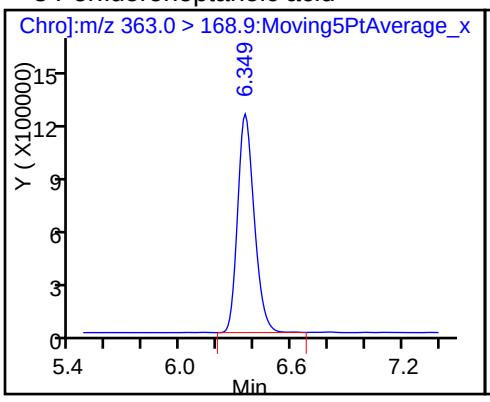
10 Perfluorohexane Sulfonate



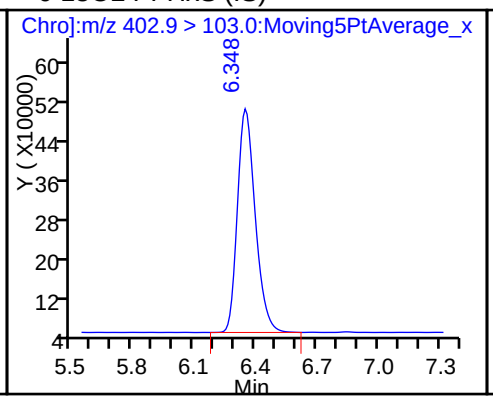
8 Perfluoroheptanoic acid



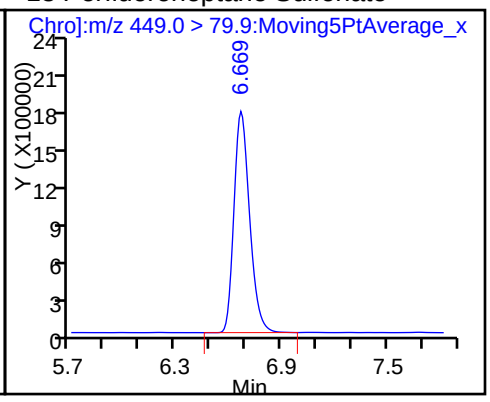
8 Perfluoroheptanoic acid



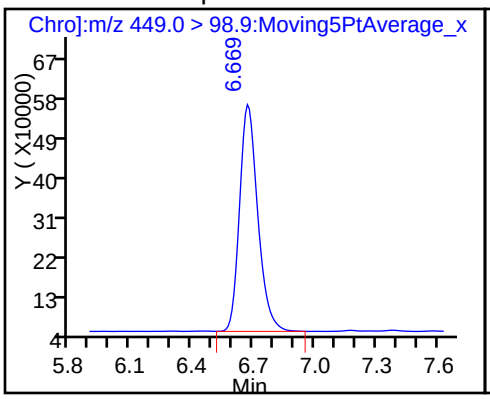
* 9 18O2 PFHxS (IS)



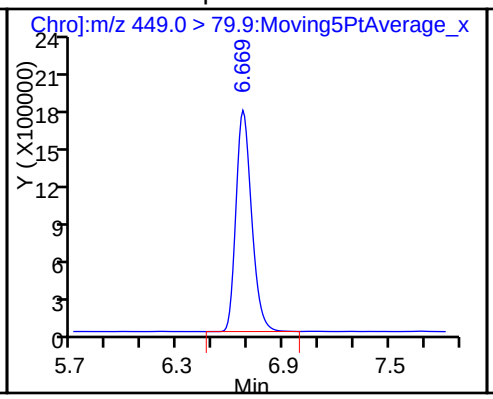
13 Perfluoroheptane Sulfonate



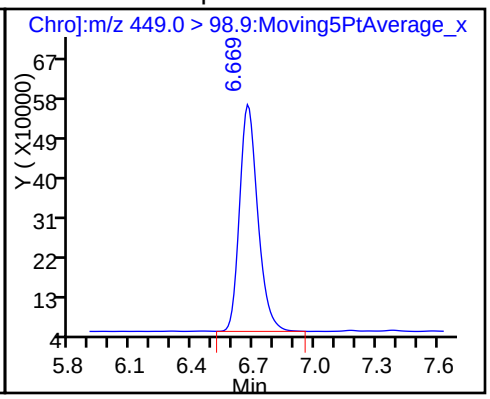
13 Perfluoroheptane Sulfonate



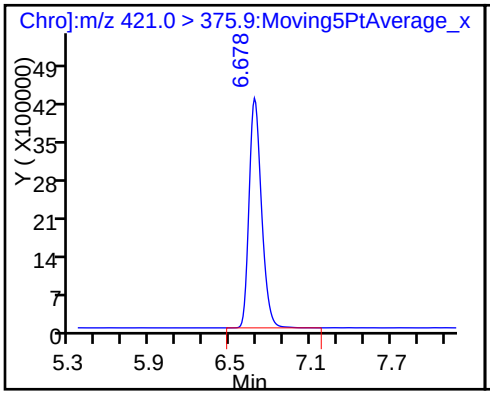
12 Perfluoroheptanesulfonic Acid



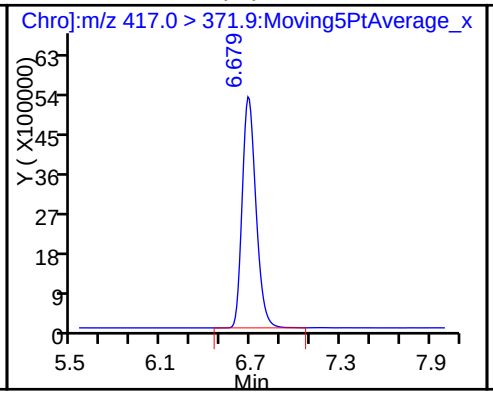
12 Perfluoroheptanesulfonic Acid



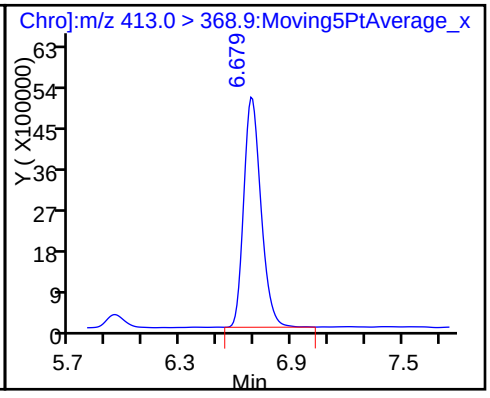
$ 14 13C8 PFOA



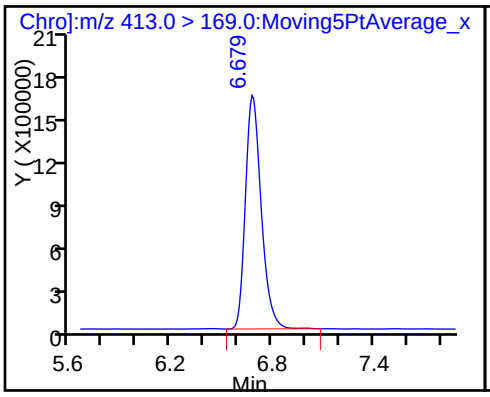
* 15 13C4 PFOA (IS)



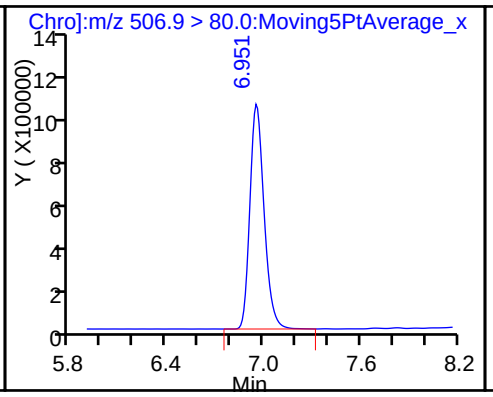
16 Perfluorooctanoic acid



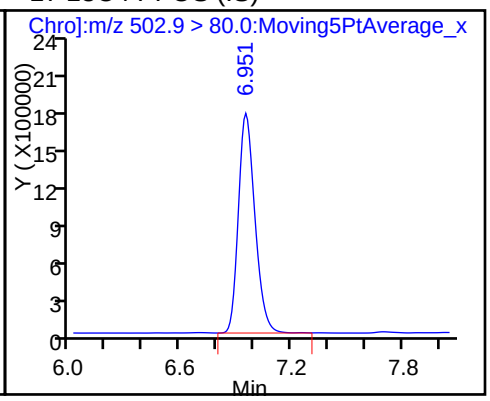
16 Perfluorooctanoic acid



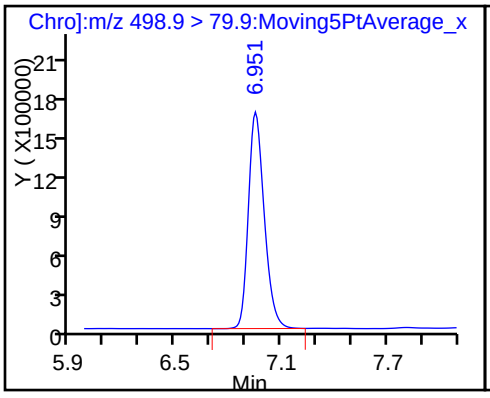
$ 18 13C8 PFOS



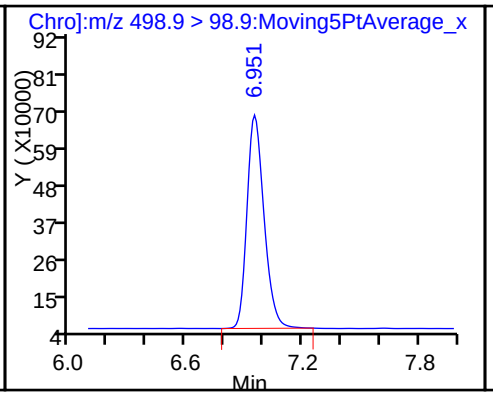
* 17 13C4 PFOS (IS)



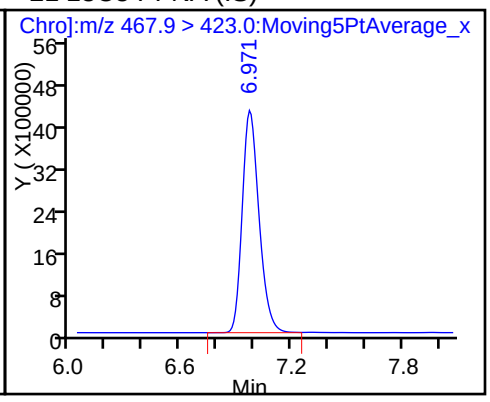
19 Perfluorooctane sulfonic acid



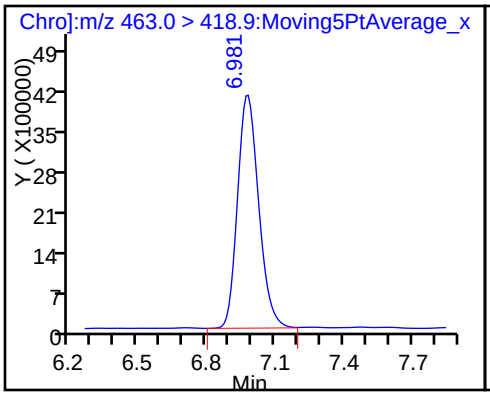
19 Perfluorooctane sulfonic acid



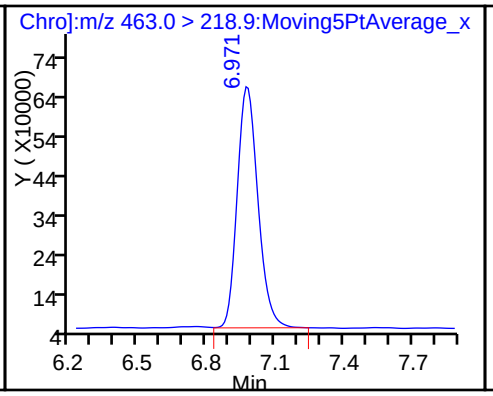
* 21 13C5 PFNA (IS)



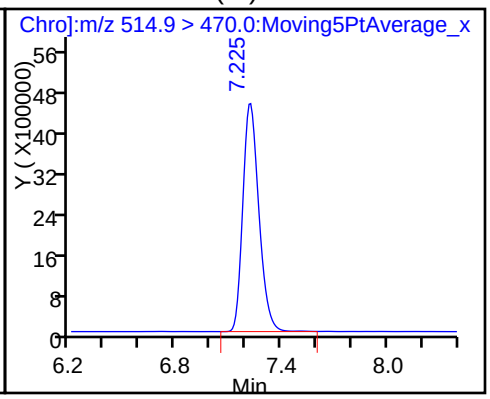
20 Perfluorononanoic acid



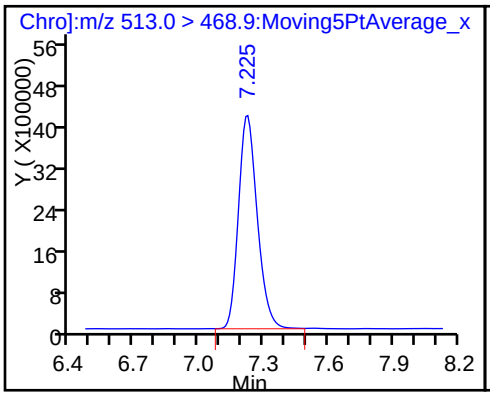
20 Perfluorononanoic acid



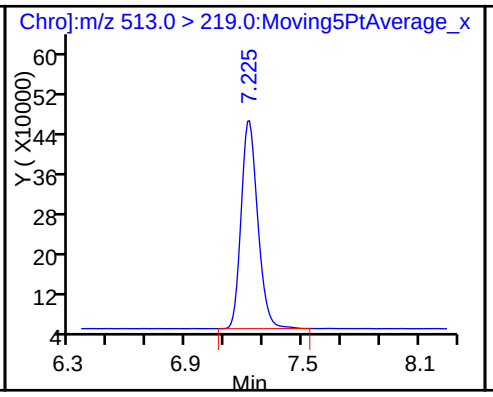
* 22 13C2 PFDA (IS)



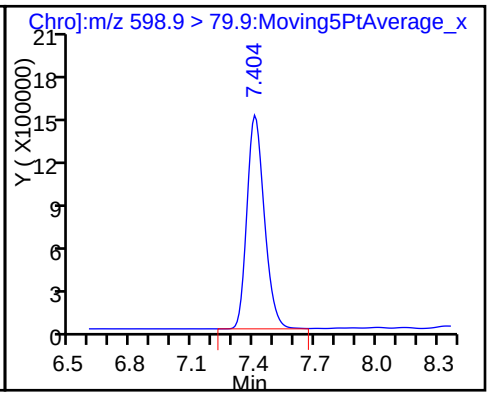
23 Perfluorodecanoic acid



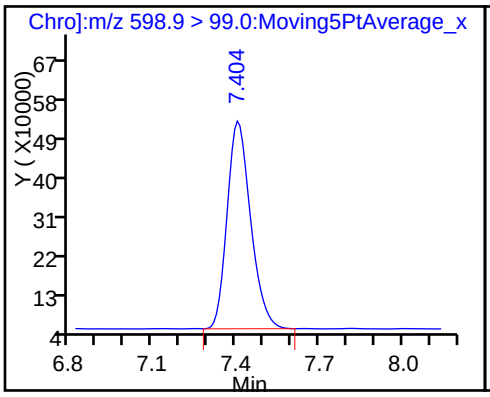
23 Perfluorodecanoic acid



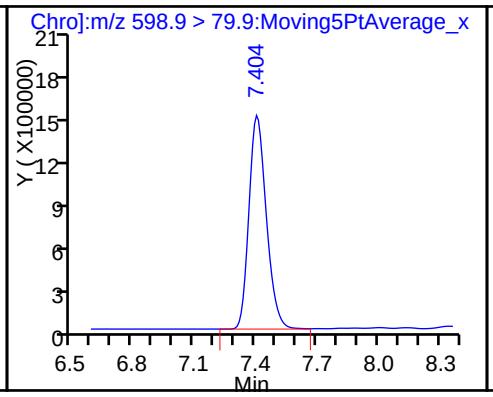
25 Perfluorodecane Sulfonate



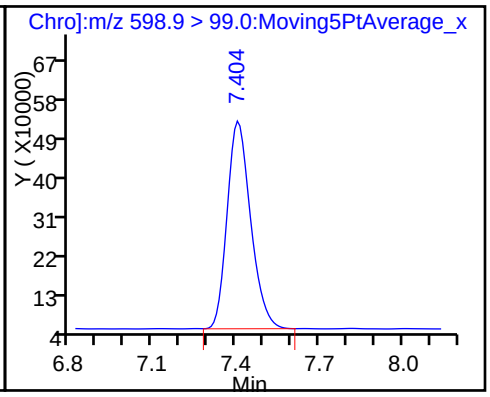
25 Perfluorodecane Sulfonate



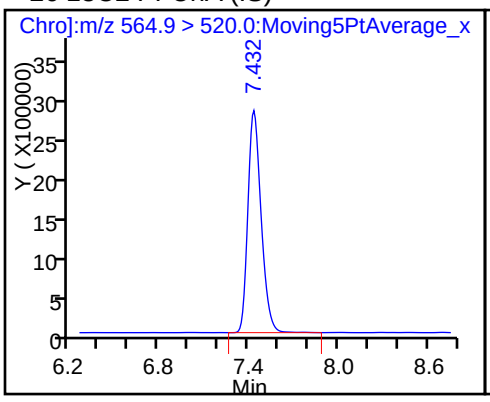
24 Perfluorodecane Sulfonic acid



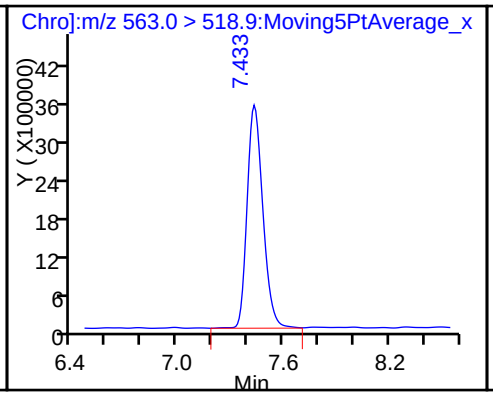
24 Perfluorodecane Sulfonic acid



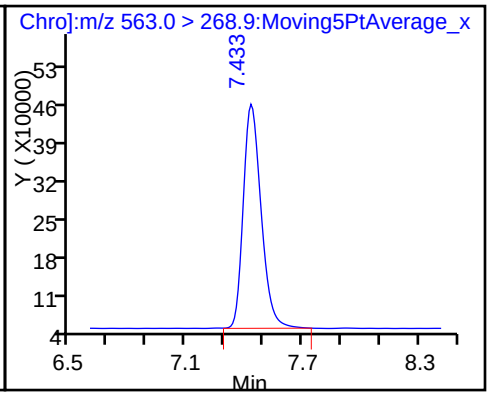
* 26 13C2 PFUnA (IS)



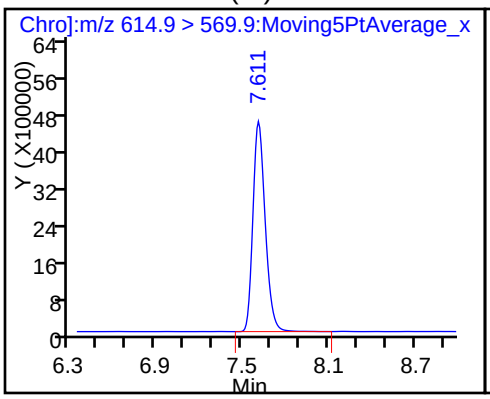
27 Perfluoroundecanoic acid



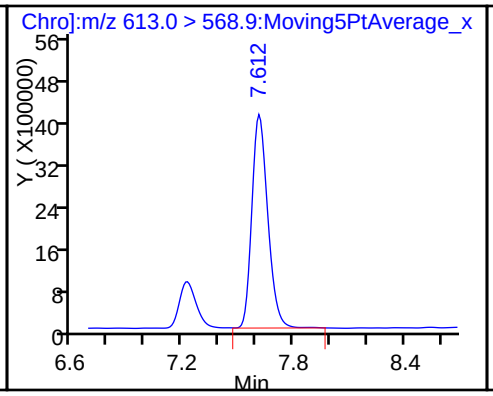
27 Perfluoroundecanoic acid



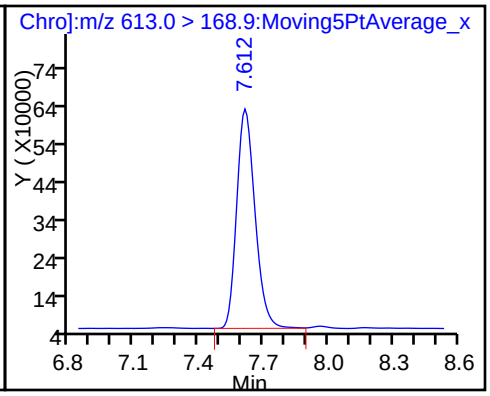
* 28 13C2 PFDoA (IS)



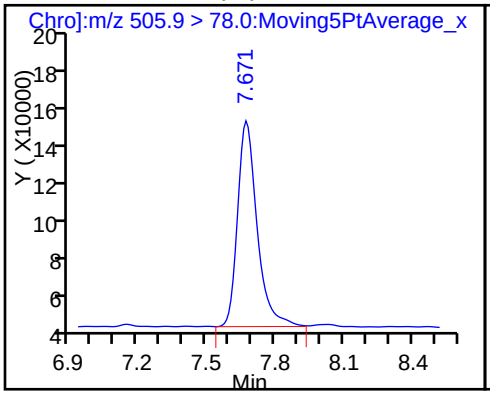
29 Perfluorododecanoic acid



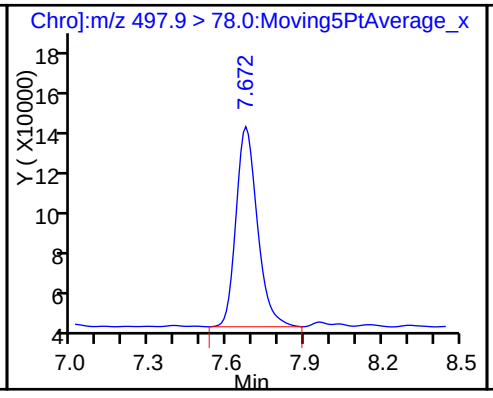
29 Perfluorododecanoic acid



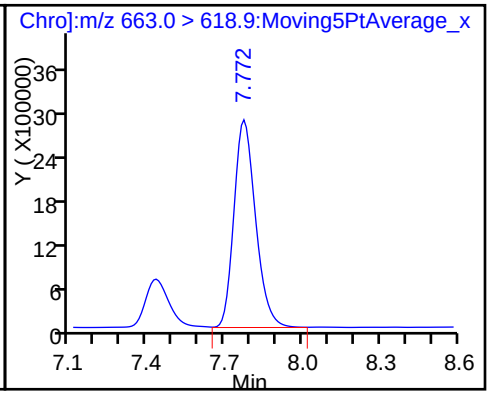
* 31 13C8 FOSA (IS)



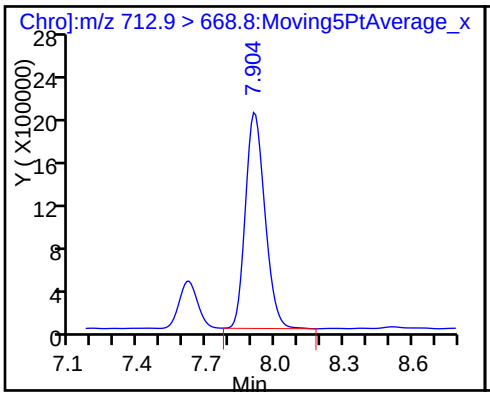
32 Perfluorooctane Sulfonamide



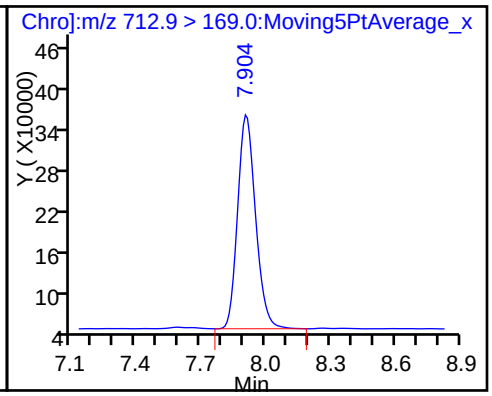
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: | Lab Sample ID: LCS 280-332389/2-A

Matrix: Solid | Lab File ID: PC516G07040.d

Analysis Method: DV-LC-0012 | Date Collected:

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10(g) | Date Analyzed: 07/07/2016 14:15

Con. Extract Vol.: 20.4(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 332793 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	13.65		0.82	0.14
375-85-9	Perfluoroheptanoic acid (PFHpA)	18.86		0.82	0.12
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	16.86		0.82	0.29
375-95-1	Perfluorononanoic acid (PFNA)	17.00		0.82	0.22
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15.80		0.82	0.14
335-67-1	Perfluorooctanoic acid (PFOA)	18.39		0.82	0.23

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	108		57-153
STL01054	13C8 PFOS	106		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07040.d
Lims ID: LCS 280-332389/2-A
Client ID:
Sample Type: LCS
Inject. Date: 07-Jul-2016 14:15:21 ALS Bottle#: 0 Worklist Smp#: 5
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: LCS 280-332389/2-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 08-Jul-2016 09:15:01 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK002

First Level Reviewer: fiedlerh Date: 08-Jul-2016 07:55:08

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.645	4.569	0.076		27428214	9.80			
2 Perfluorobutyric acid									
213.0 > 168.9	4.645	4.570	0.075	1.000	24344280	8.11			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.649	5.592	0.057	0.912	20179138	8.55			
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.753	5.705	0.048	0.874	9955403	6.69			
298.9 > 98.9	5.762	5.705	0.057	0.875	3054833		3.26(1.80-3.35)		
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.753	5.705	0.048	0.874	9955403	6.69			
298.9 > 98.9	5.762	5.705	0.057	0.875	3054833		3.26(2.57-2.57)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	6.197	6.141	0.056		19661874	9.80			
7 Perfluorohexanoic acid									
313.0 > 268.9	6.198	6.141	0.057	1.000	15957598	8.41			
313.0 > 118.6	6.198	6.141	0.057	1.000	487428		32.74(34.05-63.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.585	6.537	0.048		2642577	9.27			
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.585	6.538	0.047	1.000	9124852	8.26			
398.9 > 98.9	6.585	6.538	0.047	1.000	3161677		2.89(1.85-1.85)		
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.585	6.538	0.047	1.000	9124852	8.26			R
398.9 > 98.9	6.585	6.538	0.047	1.000	3161677		2.89(1.30-2.41)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.585	6.538	0.047	0.955	25392149	9.24			
363.0 > 168.9	6.585	6.538	0.047	0.955	6702620		3.79(3.35-6.23)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.886	6.858	0.028	0.963	10956502	8.50			
449.0 > 98.9	6.886	6.858	0.028	0.963	3446484		3.18(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.886	6.858	0.028	0.963	10956502	8.50			
449.0 > 98.9	6.886	6.858	0.028	0.963	3446484		3.18(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.896	6.868	0.028	1.000	26360036	10.3			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.897	6.868	0.029		30946805	9.80			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.897	6.868	0.029	1.000	29658498	9.01			
413.0 > 169.0	6.897	6.868	0.029	1.000	9298198		3.19(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	7.150	7.131	0.019	1.000	6273254	9.65			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	7.150	7.131	0.019		9969791	9.37			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	7.150	7.131	0.019	1.000	9672838	7.75			R
498.9 > 98.9	7.150	7.131	0.019	1.000	3603481		2.68(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	7.170	7.160	0.010		24417939	9.80			
20 Perfluorononanoic acid									
463.0 > 418.9	7.170	7.151	0.019	1.000	23305706	8.33			
463.0 > 218.9	7.170	7.151	0.019	1.000	3582811		6.50(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.405	7.386	0.019		27271252	9.80			
23 Perfluorodecanoic acid									R
513.0 > 468.9	7.405	7.386	0.019	1.000	22901303	8.17			R
513.0 > 219.0	7.405	7.386	0.019	1.000	2308181		9.92(10.49-19.48)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.574	7.555	0.019	1.059	10033578	7.62			
598.9 > 99.0	7.584	7.555	0.029	1.061	2983132		3.36(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.574	7.555	0.019	1.059	10033578	7.62			
598.9 > 99.0	7.584	7.555	0.029	1.061	2983132		3.36(2.84-2.84)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.603	7.584	0.019		16188860	9.80			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.603	7.584	0.019	1.000	19976300	8.53			R
563.0 > 268.9	7.603	7.584	0.019	1.000	2508095		7.96(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.772	7.753	0.019		35068729	9.80			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.773	7.754	0.019	1.000	31560980	8.58			
613.0 > 168.9	7.773	7.754	0.019	1.000	4008562		7.87(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.879	7.870	0.009		29466495	9.80			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.880	7.871	0.009	1.000	29045307	8.90			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.924	7.895	0.029	1.019	28746631	8.63			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	8.046	8.027	0.019	1.035	21569839	10.2			
712.9 > 169.0	8.046	8.027	0.019	1.035	3532561		6.11(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Report Date: 08-Jul-2016 09:15:13 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07040.d

Injection Date: 07-Jul-2016 14:15:21 Instrument ID: LC_LCMS5

Lims ID: LCS 280-332389/2-A

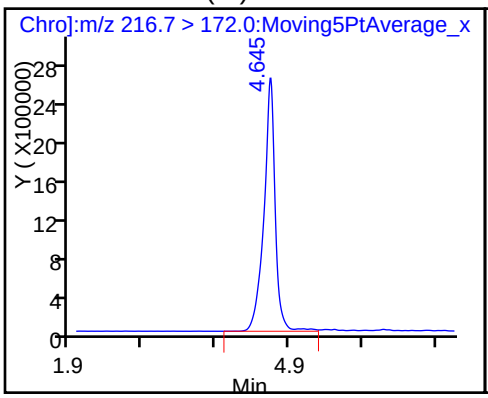
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 5

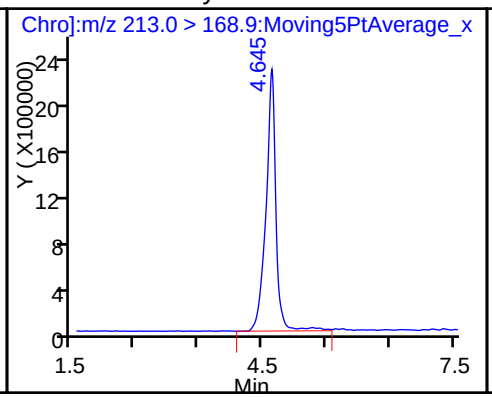
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

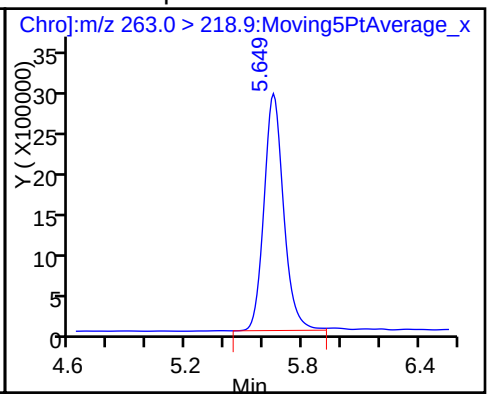
* 1 13C4 PFBA (IS)



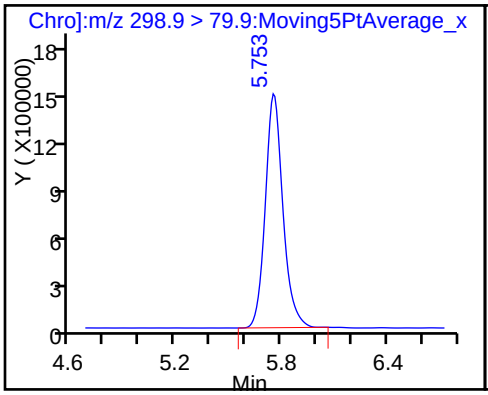
2 Perfluorobutyric acid



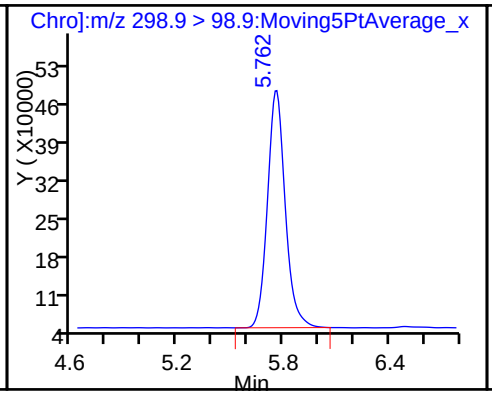
3 Perfluoropentanoic acid



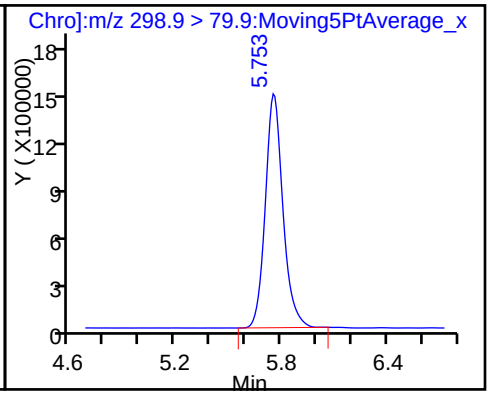
4 Perfluorobutane Sulfonate



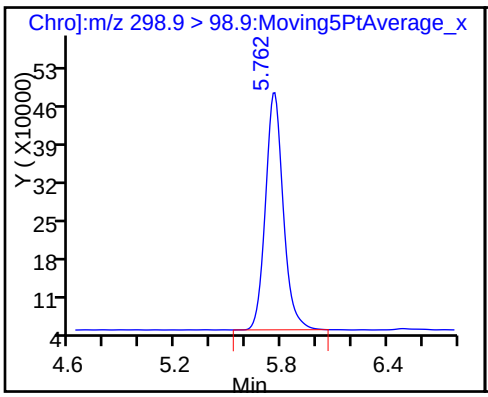
4 Perfluorobutane Sulfonate



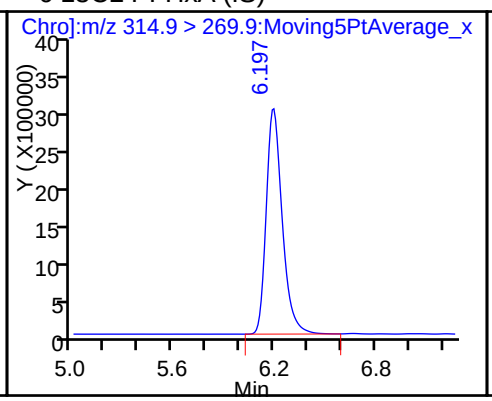
5 Perfluorobutanesulfonic acid



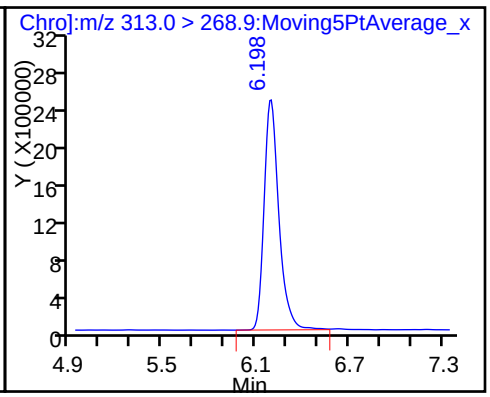
5 Perfluorobutanesulfonic acid



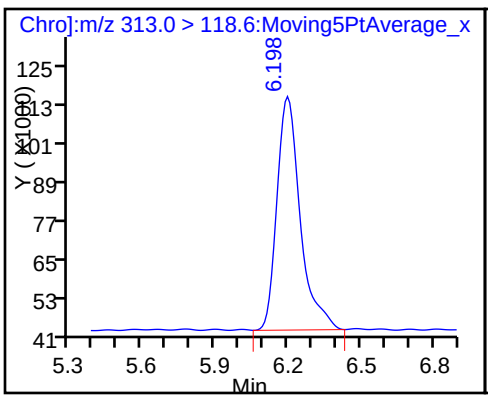
* 6 13C2 PFHxA (IS)



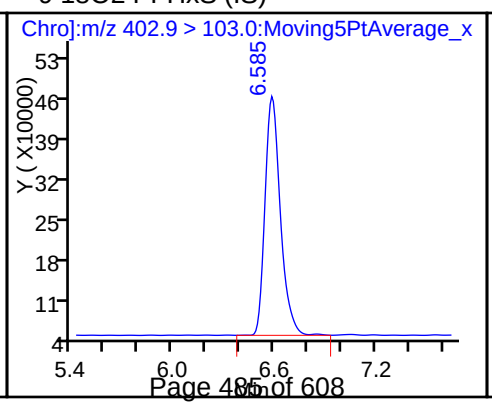
7 Perfluorohexanoic acid



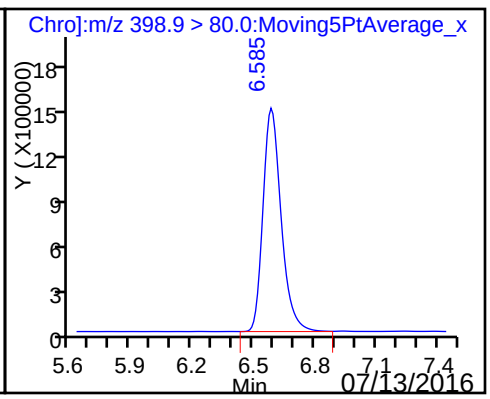
7 Perfluorohexanoic acid



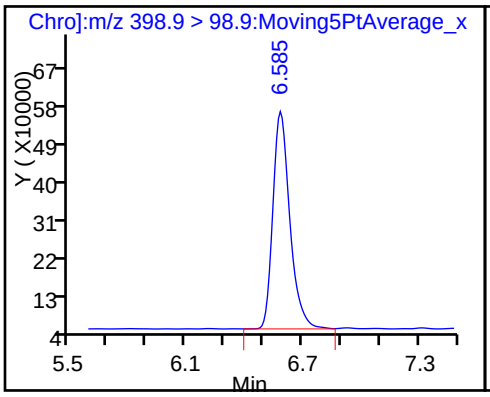
* 9 18O2 PFHxS (IS)



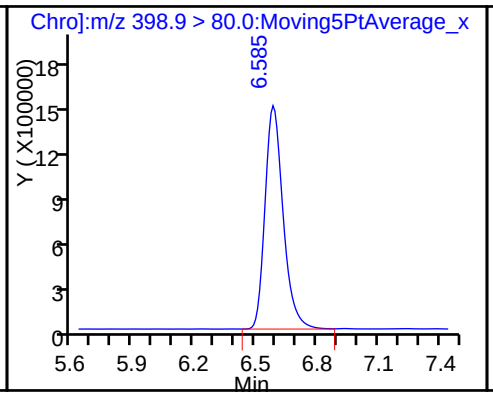
11 Perfluorohexanesulfonic acid



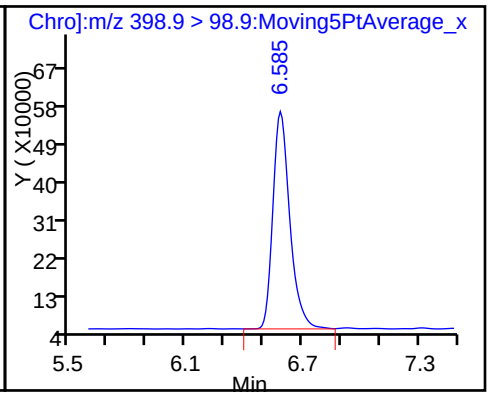
11 Perfluorohexanesulfonic acid



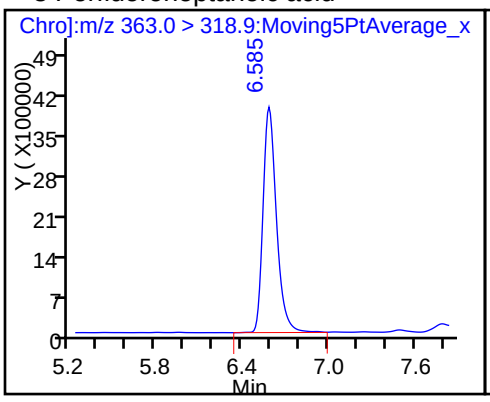
10 Perfluorohexane Sulfonate



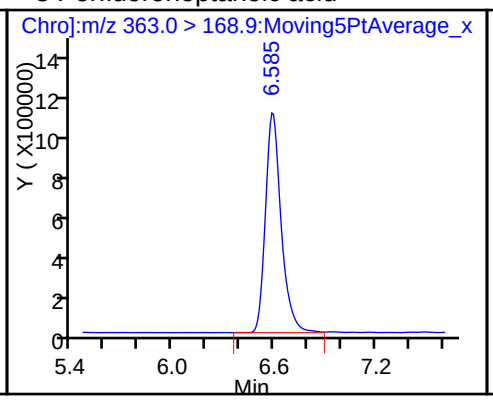
10 Perfluorohexane Sulfonate



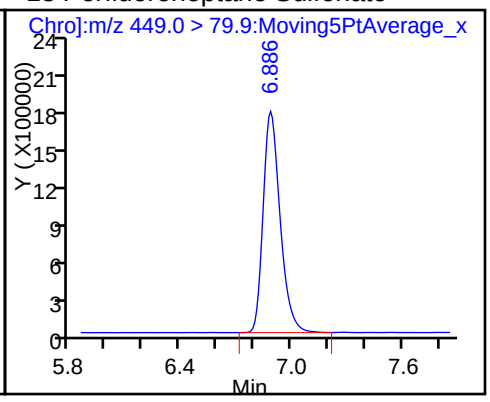
8 Perfluoroheptanoic acid



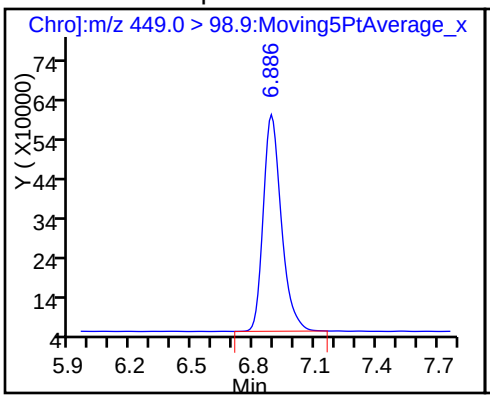
8 Perfluoroheptanoic acid



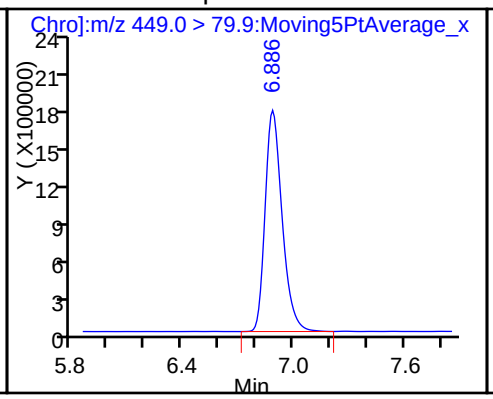
13 Perfluoroheptane Sulfonate



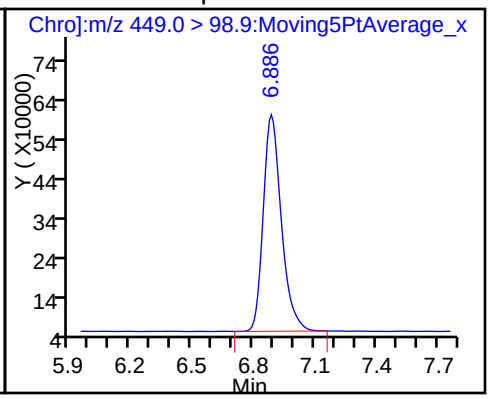
13 Perfluoroheptane Sulfonate



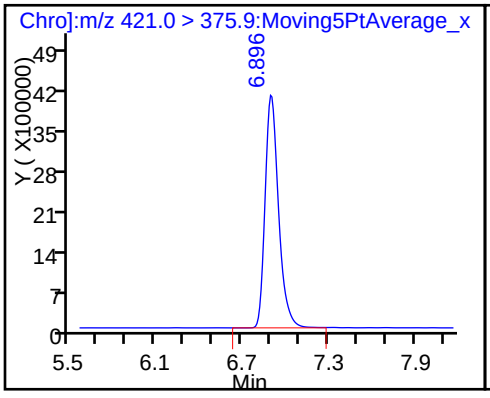
12 Perfluoroheptanesulfonic Acid



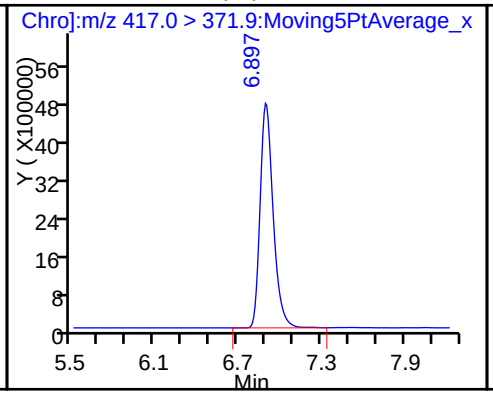
12 Perfluoroheptanesulfonic Acid



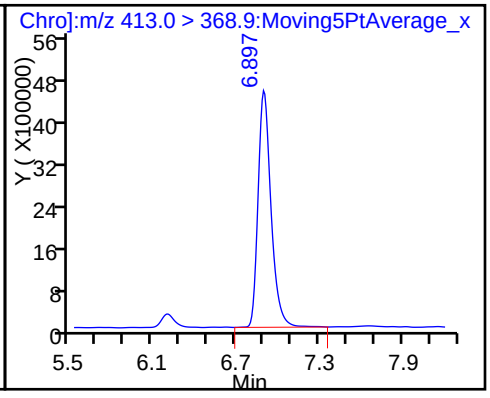
$ 14 13C8 PFOA



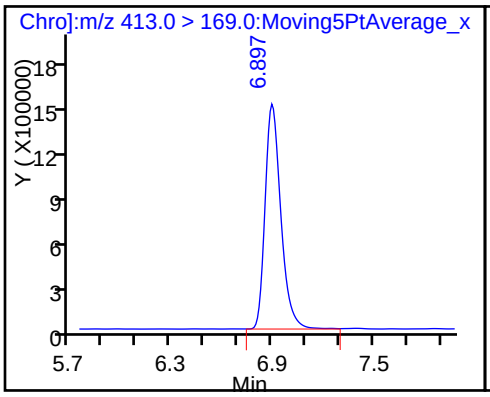
* 15 13C4 PFOA (IS)



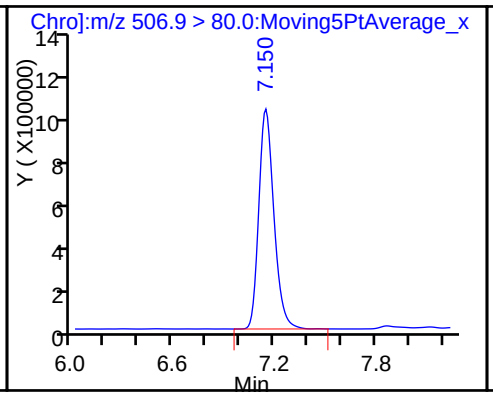
16 Perfluorooctanoic acid



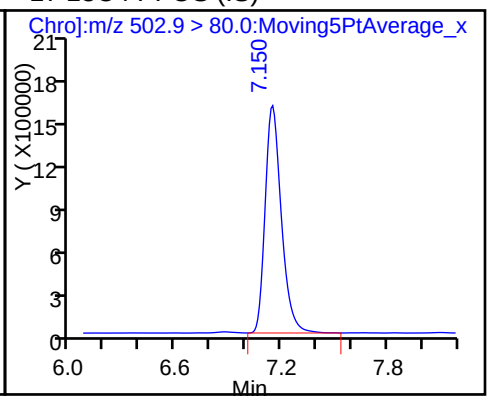
16 Perfluorooctanoic acid



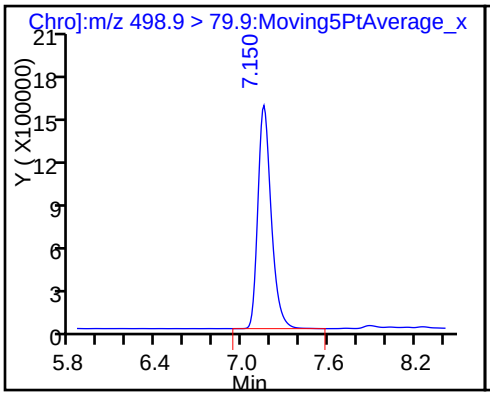
$ 18 13C8 PFOS



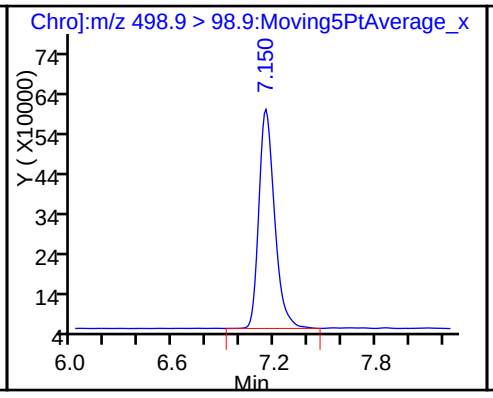
* 17 13C4 PFOS (IS)



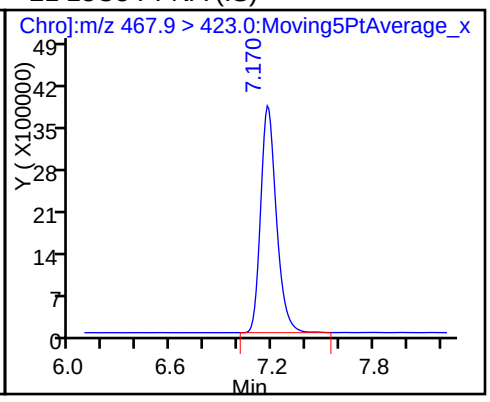
19 Perfluorooctane sulfonic acid



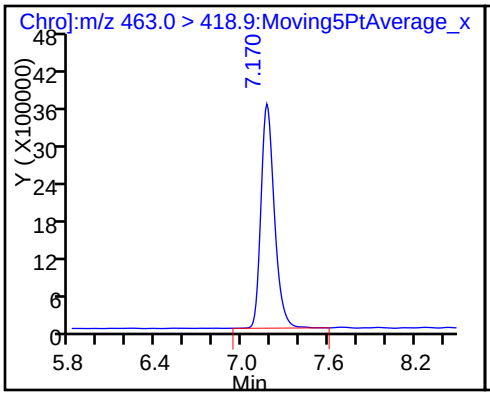
19 Perfluorooctane sulfonic acid



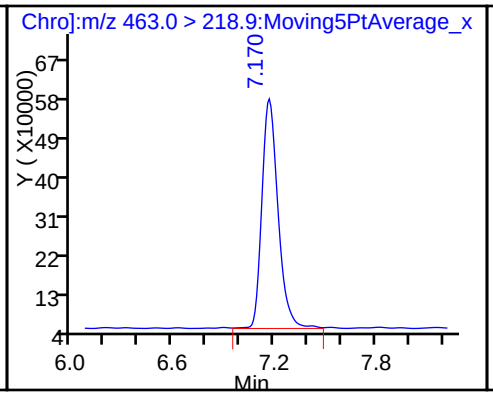
* 21 13C5 PFNA (IS)



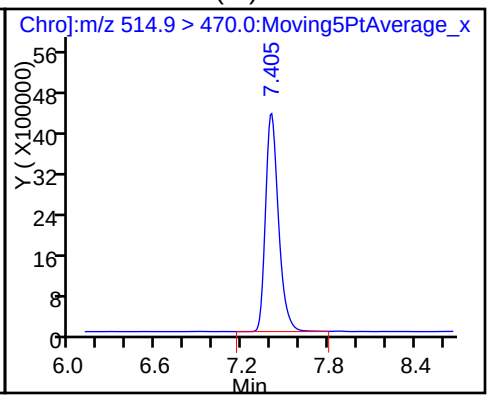
20 Perfluorononanoic acid



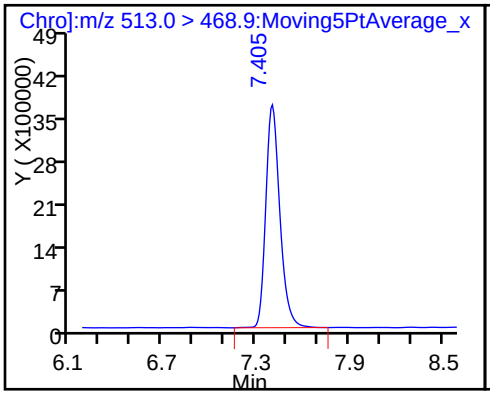
20 Perfluorononanoic acid



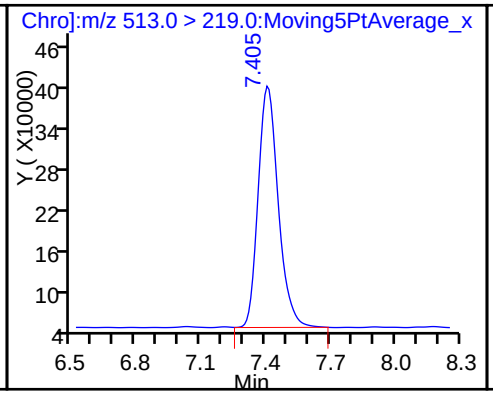
* 22 13C2 PFDA (IS)



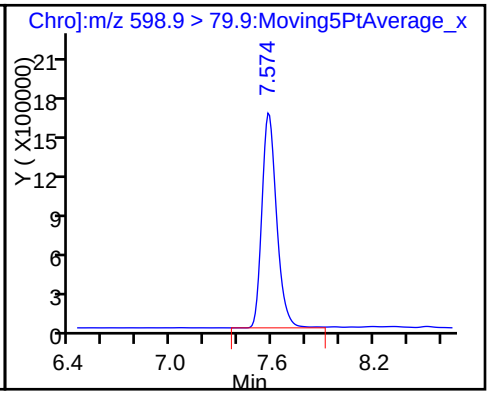
23 Perfluorodecanoic acid



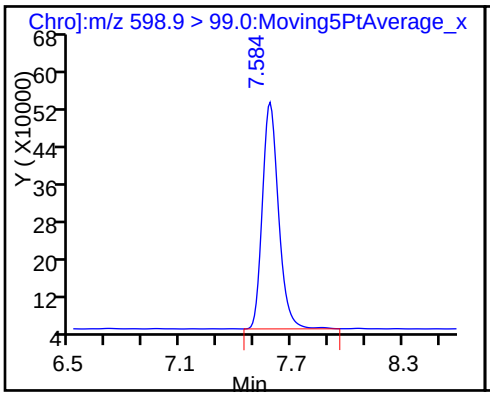
23 Perfluorodecanoic acid



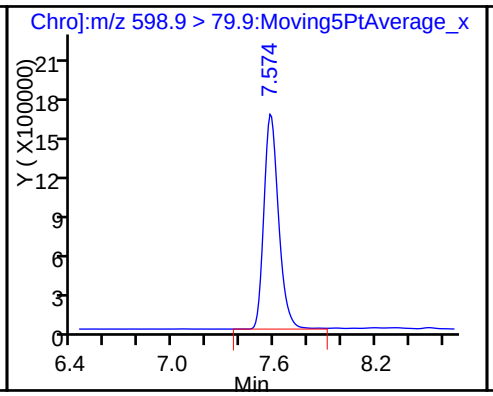
25 Perfluorodecane Sulfonate



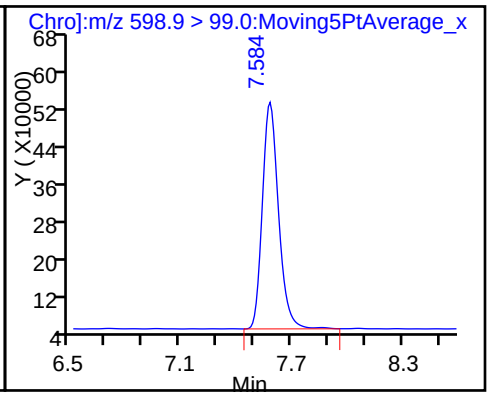
25 Perfluorodecane Sulfonate



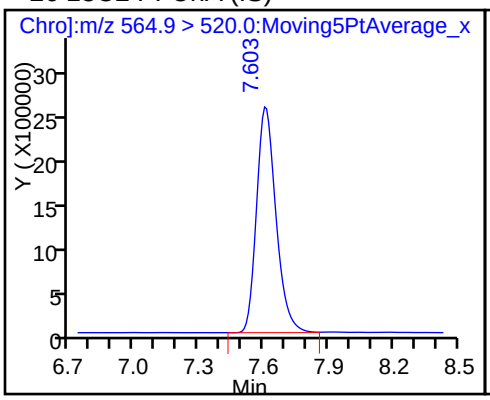
24 Perfluorodecane Sulfonic acid



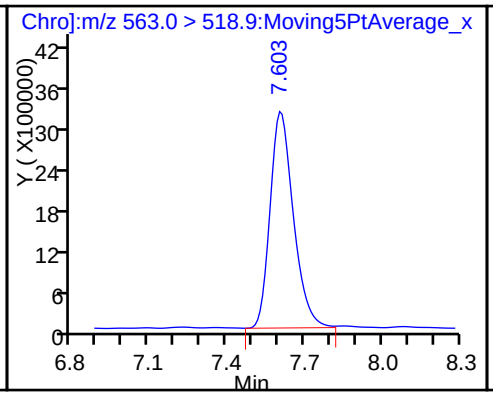
24 Perfluorodecane Sulfonic acid



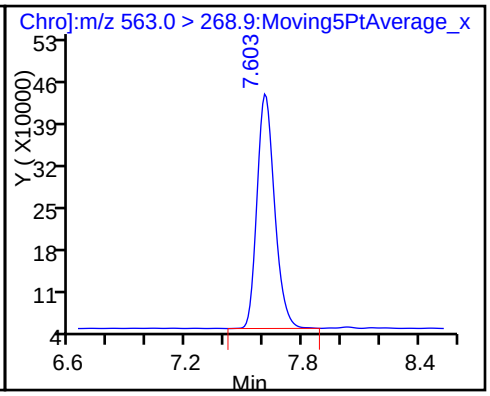
* 26 13C2 PFUnA (IS)



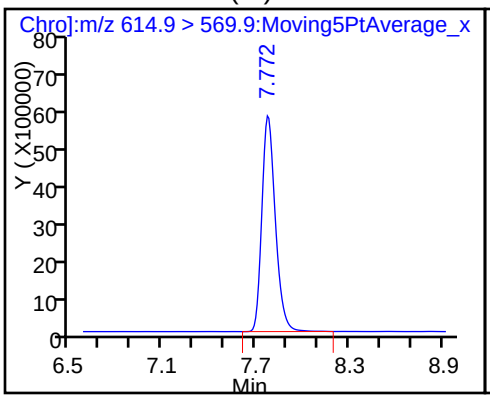
27 Perfluoroundecanoic acid



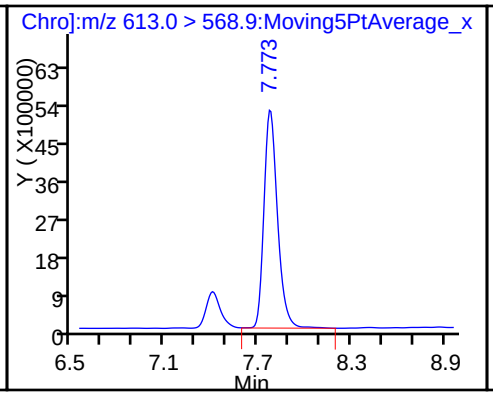
27 Perfluoroundecanoic acid



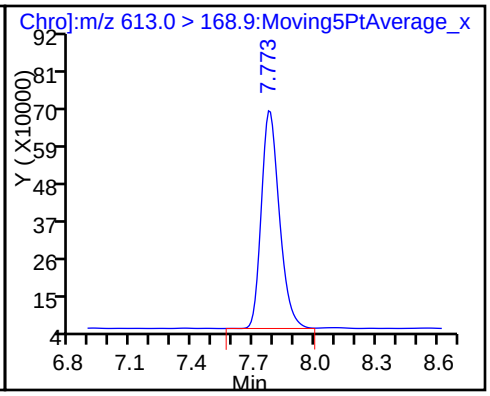
* 28 13C2 PFDoA (IS)



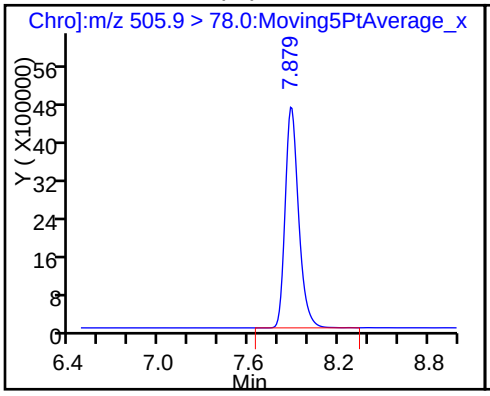
29 Perfluorododecanoic acid



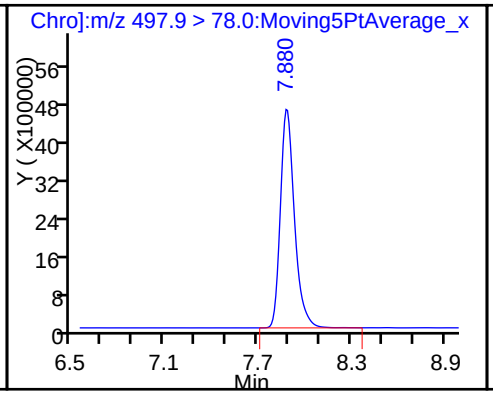
29 Perfluorododecanoic acid



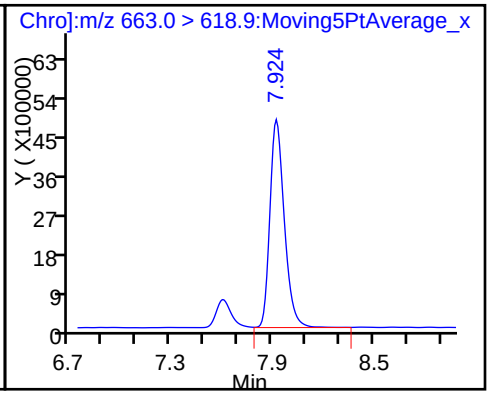
* 31 13C8 FOSA (IS)



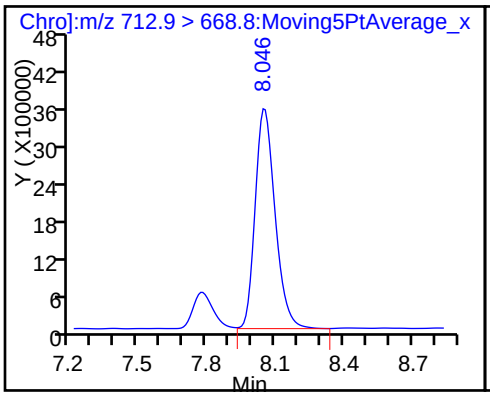
32 Perfluorooctane Sulfonamide



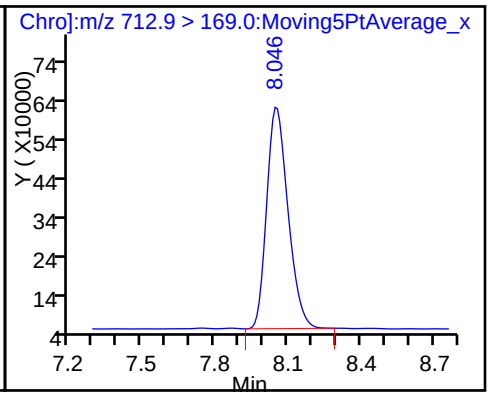
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: | Lab Sample ID: LCS 280-332390/2-A

Matrix: Solid | Lab File ID: PC516G08016.d

Analysis Method: DV-LC-0012 | Date Collected:

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10(g) | Date Analyzed: 07/08/2016 14:39

Con. Extract Vol.: 20.4(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 333083 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	13.58		0.82	0.14
375-85-9	Perfluoroheptanoic acid (PFHpA)	17.37		0.82	0.12
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	16.24		0.82	0.29
375-95-1	Perfluorononanoic acid (PFNA)	16.37		0.82	0.22
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16.71		0.82	0.14
335-67-1	Perfluorooctanoic acid (PFOA)	18.19		0.82	0.23

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	105		57-153
STL01054	13C8 PFOS	107		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08016.d
Lims ID: LCS 280-332390/2-A
Client ID:
Sample Type: LCS
Inject. Date: 08-Jul-2016 14:39:40 ALS Bottle#: 0 Worklist Smp#: 11
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: LCS 280-332390/2-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 11-Jul-2016 11:14:20 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK031

First Level Reviewer: fiedlerh Date: 11-Jul-2016 10:51:17

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.276	4.266	0.010		25367573	9.80			
2 Perfluorobutyric acid									
213.0 > 168.9	4.276	4.266	0.010	1.000	22935709	8.26			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.270	5.261	0.009	0.900	19636034	8.73			
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.383	5.374	0.009	0.856	9213785	6.65			
298.9 > 98.9	5.383	5.374	0.009	0.856	2836796		3.25(1.80-3.35)		
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.383	5.374	0.009	0.856	9213785	6.65			
298.9 > 98.9	5.383	5.374	0.009	0.856	2836796		3.25(2.57-2.57)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.856	5.847	0.009		18729932	9.80			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.857	5.847	0.010	1.000	15399585	8.52			
313.0 > 118.6	5.857	5.847	0.010	1.000	379946		40.53(34.05-63.23)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.292	6.282	0.010	0.947	22083325	8.52			
363.0 > 168.9	6.292	6.282	0.010	0.947	5922758		3.73(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.291	6.282	0.009		2458813	9.27			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.291	6.282	0.009	1.000	8182426	7.96			R
398.9 > 98.9	6.291	6.282	0.009	1.000	2632887		3.11(1.30-2.41)		
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.291	6.282	0.009	1.000	8182426	7.96			
398.9 > 98.9	6.291	6.282	0.009	1.000	2632887		3.11(1.85-1.85)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.621	6.621	0.0	0.958	9522888	8.43			
449.0 > 98.9	6.631	6.621	0.010	0.959	3066368		3.11(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.621	6.621	0.0	0.958	9522888	8.43			
449.0 > 98.9	6.631	6.621	0.010	0.959	3066368		3.11(0.00-0.00)		
16 Perfluorooctanoic acid									
413.0 > 368.9	6.641	6.632	0.009	1.000	27694936	8.92			
413.0 > 169.0	6.641	6.632	0.009	1.000	8171592		3.39(2.86-5.31)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.641	6.631	0.010	1.000	24338931	10.1			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.641	6.631	0.010		29205573	9.80			
$ 18 13C8 PFOS									
506.9 > 80.0	6.913	6.903	0.010	1.000	5548406	9.73			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.913	6.913	0.0		8739065	9.37			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.914	6.904	0.010	1.000	8963720	8.19			R
498.9 > 98.9	6.914	6.904	0.010	1.000	3093163		2.90(1.31-2.43)		
20 Perfluorononanoic acid									
463.0 > 418.9	6.933	6.933	0.0	1.000	21760936	8.02			
463.0 > 218.9	6.933	6.933	0.0	1.000	3366808		6.46(5.59-10.38)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.933	6.933	0.0		23679201	9.80			
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.177	7.177	0.0		23484684	9.80			
23 Perfluorodecanoic acid									R
513.0 > 468.9	7.178	7.187	-0.009	1.000	21167587	8.77			R
513.0 > 219.0	7.178	7.187	-0.009	1.000	2127922		9.95(10.49-19.48)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.356	7.375	-0.019	1.064	8985513	7.78			
598.9 > 99.0	7.366	7.375	-0.009	1.065	2569393		3.50(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.356	7.375	-0.019	1.064	8985513	7.78			
598.9 > 99.0	7.366	7.375	-0.009	1.065	2569393		3.50(2.84-2.84)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.395	7.395	0.0		14573817	9.80			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.395	7.395	0.0	1.000	17942372	8.51			R
563.0 > 268.9	7.395	7.395	0.0	1.000	2345516		7.65(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.564	7.583	-0.019		29511763	9.80			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.564	7.583	-0.019	1.000	27858666	9.00			
613.0 > 168.9	7.564	7.583	-0.019	1.000	3470142		8.03(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.576	7.605	-0.029		24388688	9.80			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.577	7.605	-0.028	1.000	24301508	9.00			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.725	7.744	-0.019	1.021	25669475	9.16			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.857	7.876	-0.019	1.039	19219716	10.8			
712.9 > 169.0	7.857	7.876	-0.019	1.039	2746051		7.00(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Report Date: 11-Jul-2016 11:14:41 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08016.d

Injection Date: 08-Jul-2016 14:39:40 Instrument ID: LC_LCMS5

Lims ID: LCS 280-332390/2-A

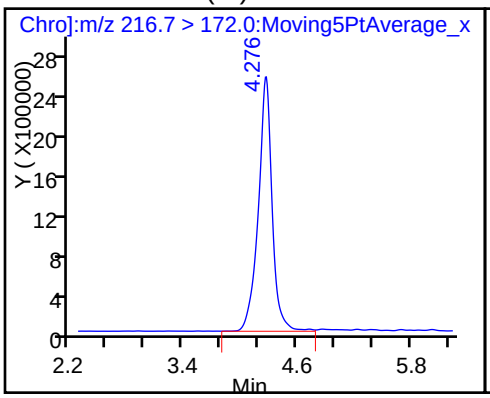
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 11

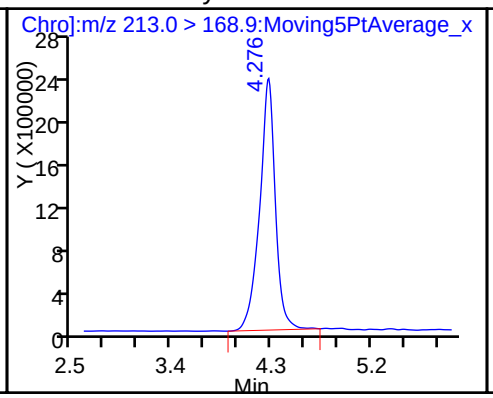
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

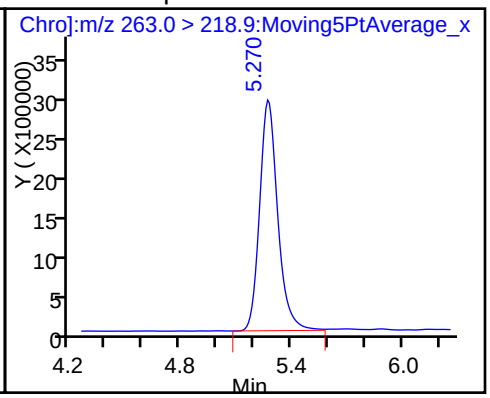
* 1 13C4 PFBA (IS)



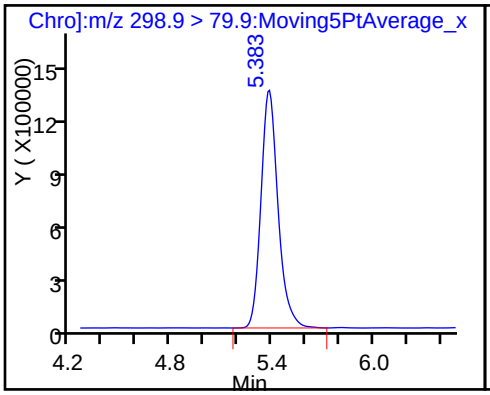
2 Perfluorobutyric acid



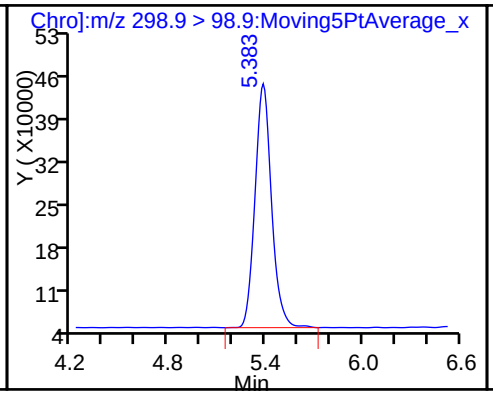
3 Perfluoropentanoic acid



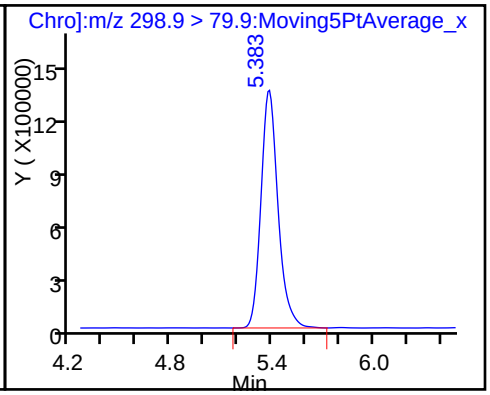
4 Perfluorobutane Sulfonate



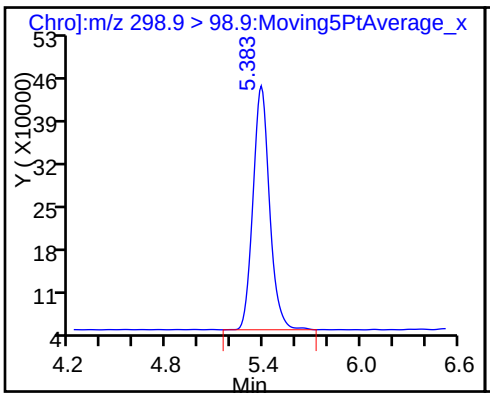
4 Perfluorobutane Sulfonate



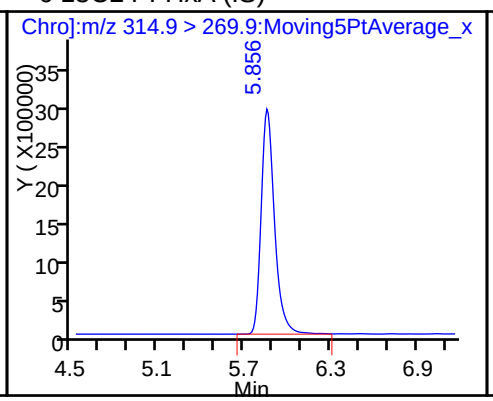
5 Perfluorobutanesulfonic acid



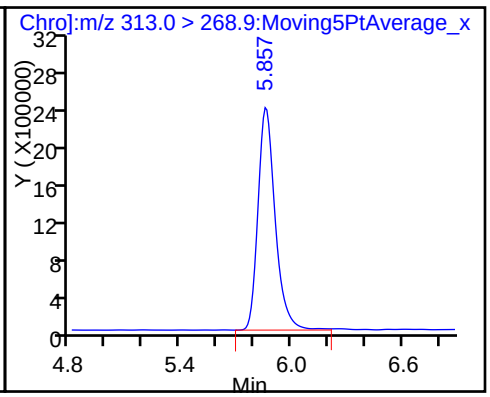
5 Perfluorobutanesulfonic acid



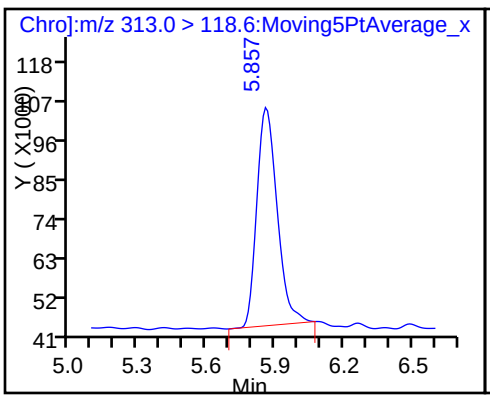
* 6 13C2 PFHxA (IS)



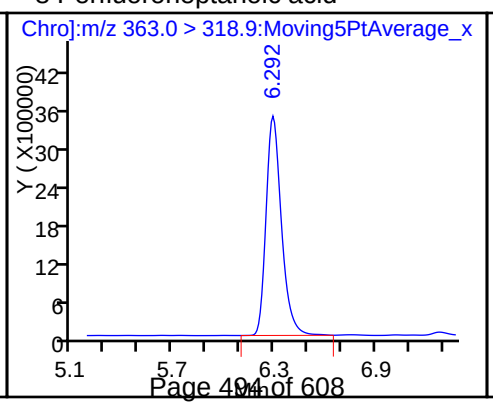
7 Perfluorohexanoic acid



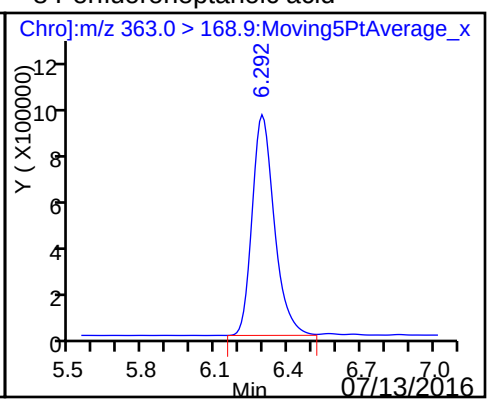
7 Perfluorohexanoic acid



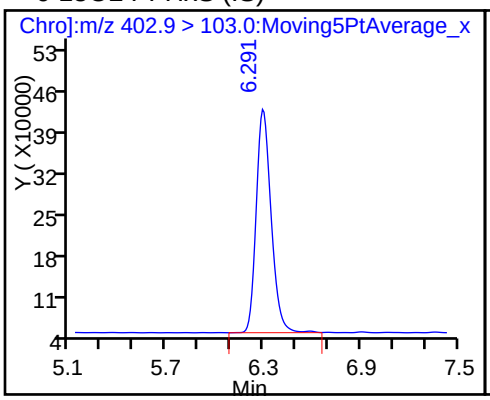
8 Perfluoroheptanoic acid



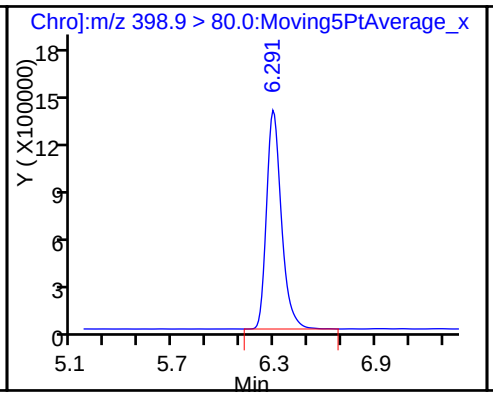
8 Perfluoroheptanoic acid



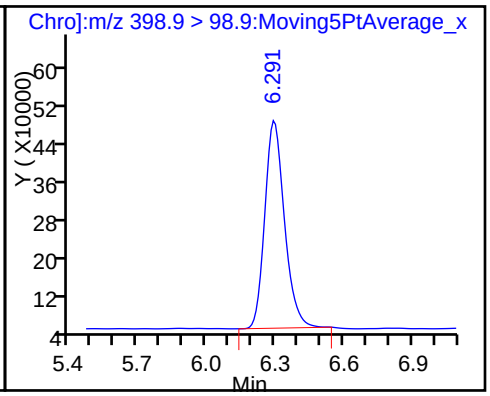
* 9 18O2 PFHxS (IS)



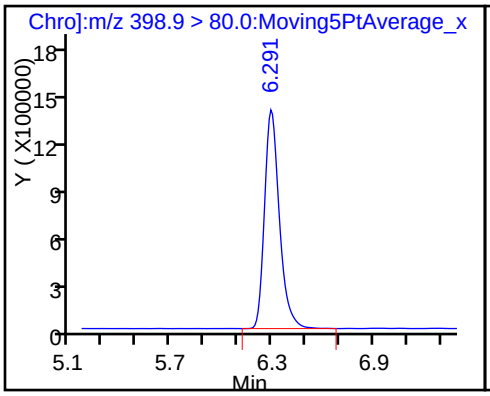
10 Perfluorohexane Sulfonate



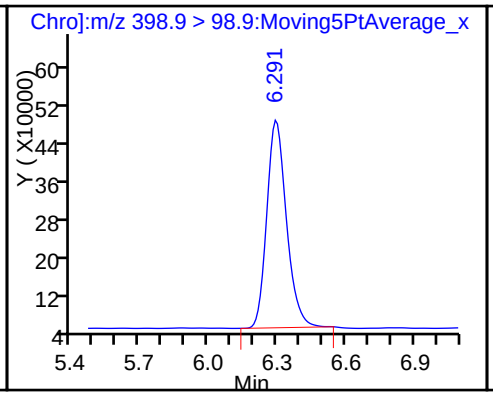
10 Perfluorohexane Sulfonate



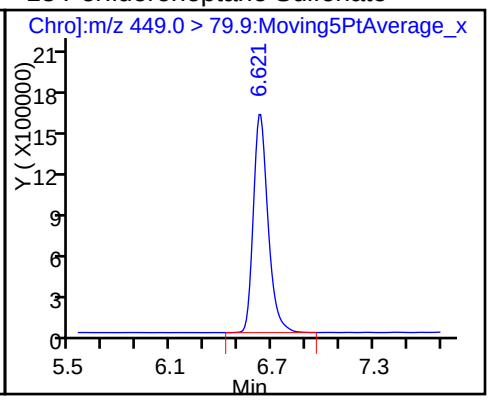
11 Perfluorohexanesulfonic acid



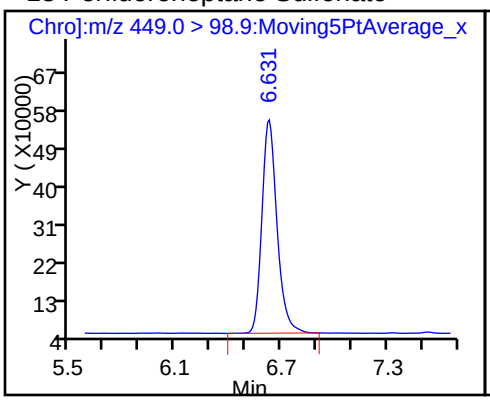
11 Perfluorohexanesulfonic acid



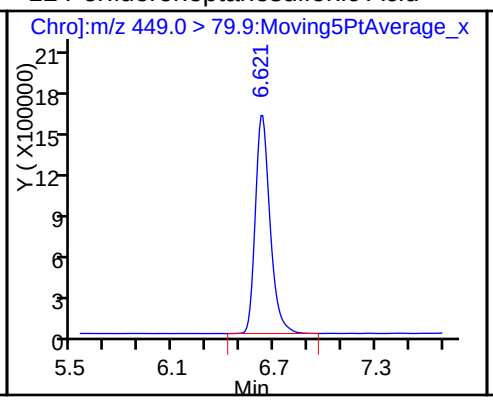
13 Perfluoroheptane Sulfonate



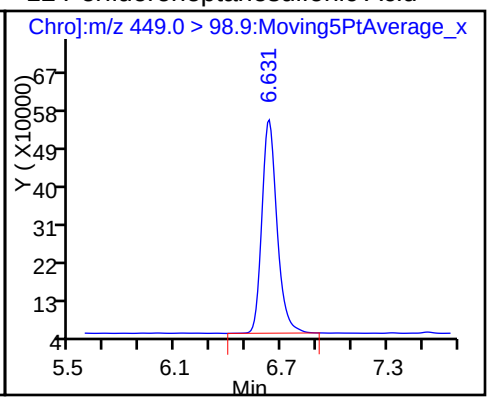
13 Perfluoroheptane Sulfonate



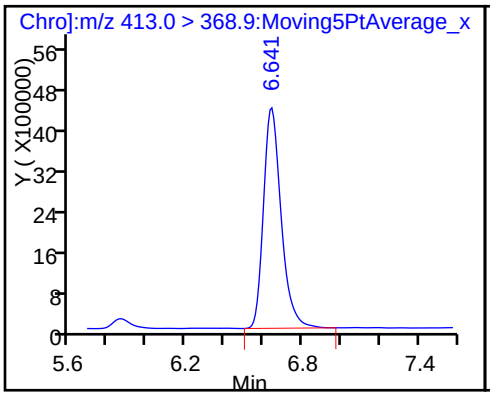
12 Perfluoroheptanesulfonic Acid



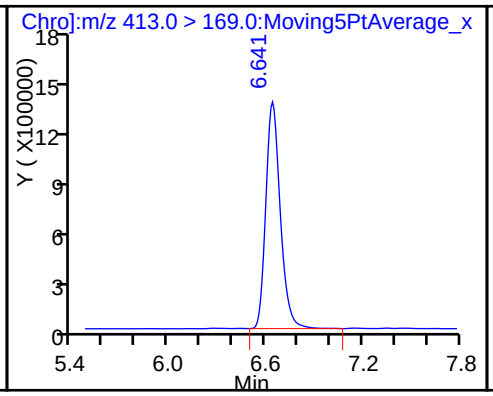
12 Perfluoroheptanesulfonic Acid



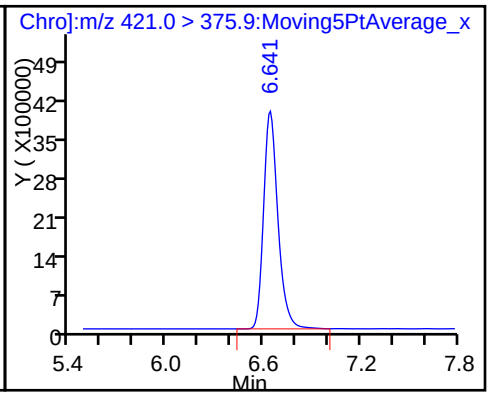
16 Perfluorooctanoic acid



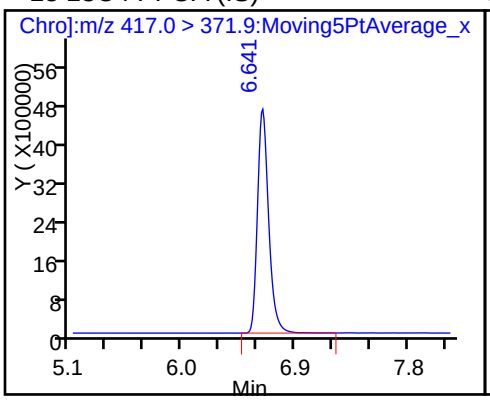
16 Perfluorooctanoic acid



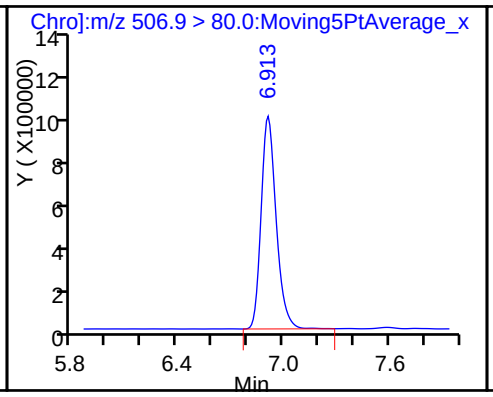
$ 14 13C8 PFOA



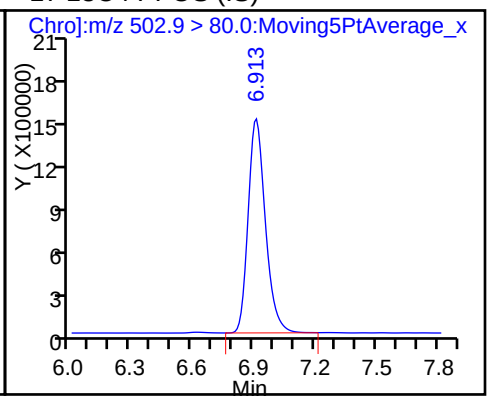
* 15 13C4 PFOA (IS)



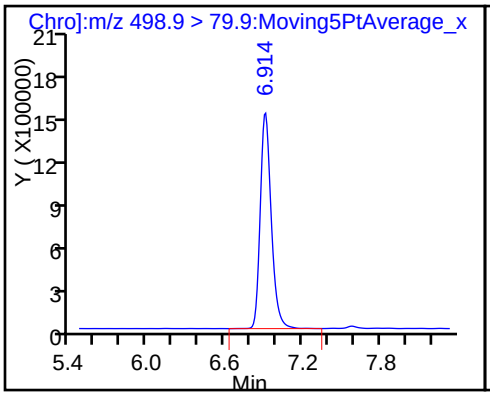
$ 18 13C8 PFOS



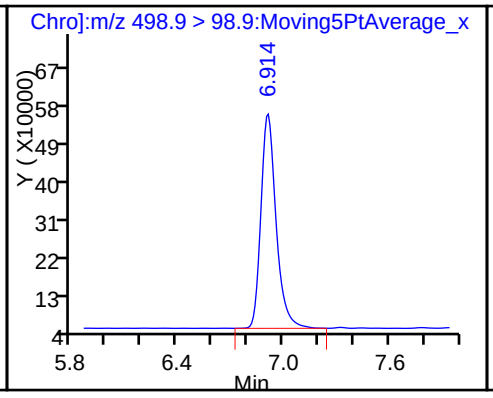
* 17 13C4 PFOS (IS)



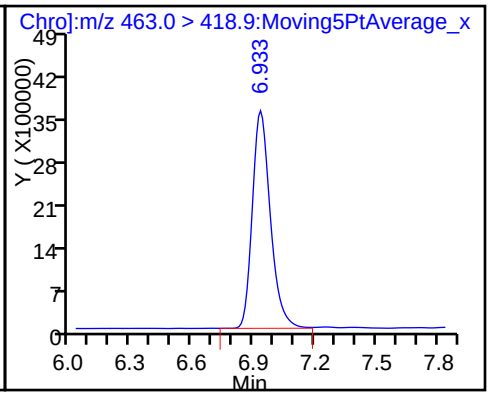
19 Perfluorooctane sulfonic acid



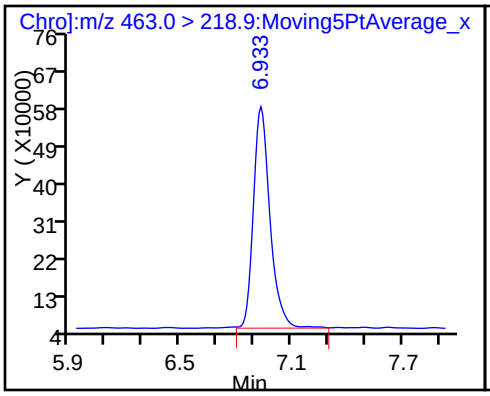
19 Perfluorooctane sulfonic acid



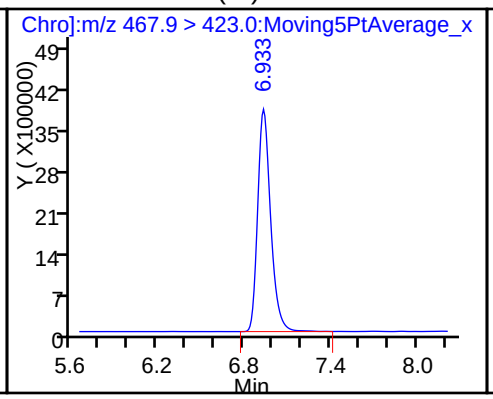
20 Perfluorononanoic acid



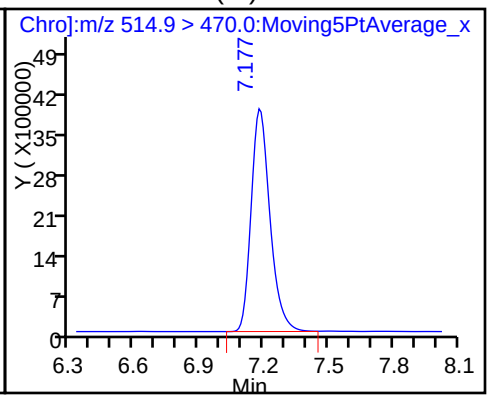
20 Perfluorononanoic acid



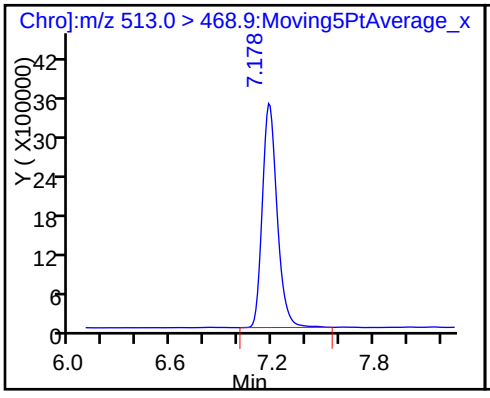
* 21 13C5 PFNA (IS)



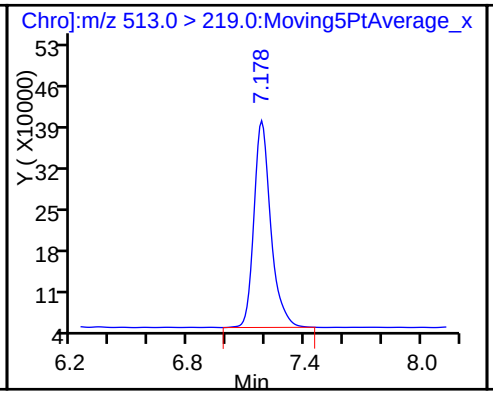
* 22 13C2 PFDA (IS)



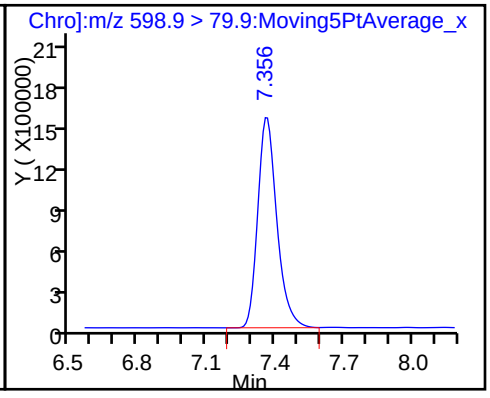
23 Perfluorodecanoic acid



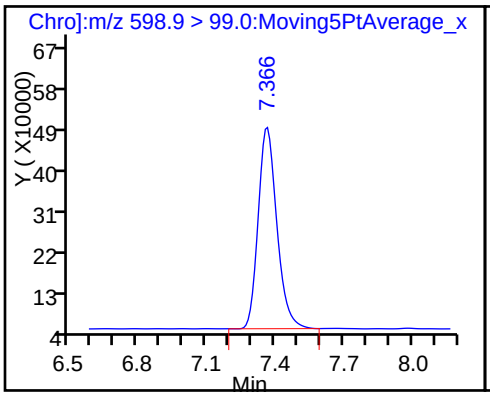
23 Perfluorodecanoic acid



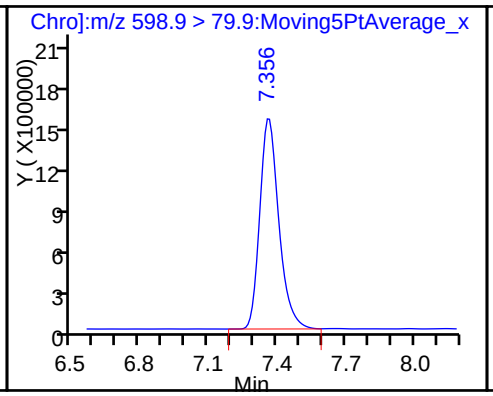
25 Perfluorodecane Sulfonate



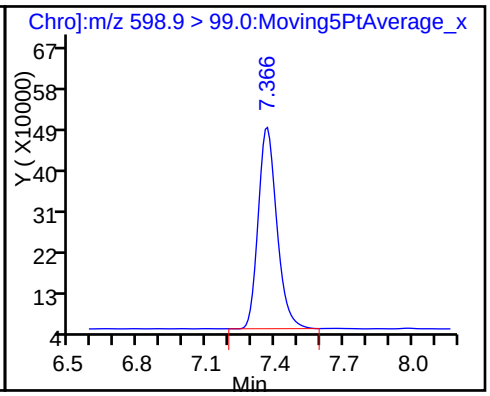
25 Perfluorodecane Sulfonate



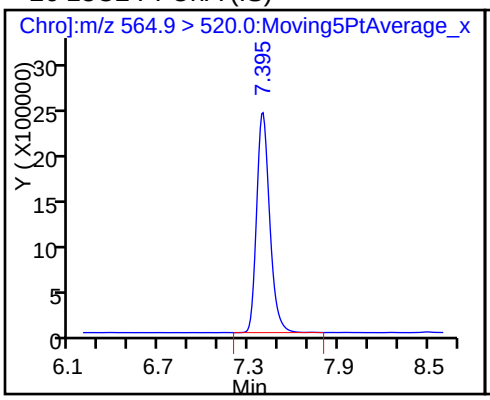
24 Perfluorodecane Sulfonic acid



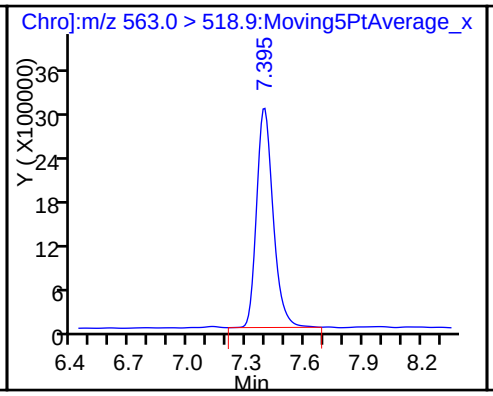
24 Perfluorodecane Sulfonic acid



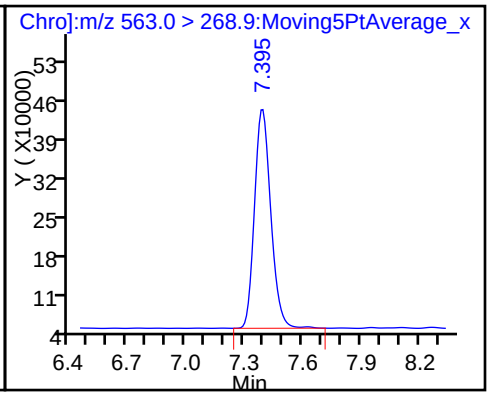
* 26 13C2 PFUnA (IS)



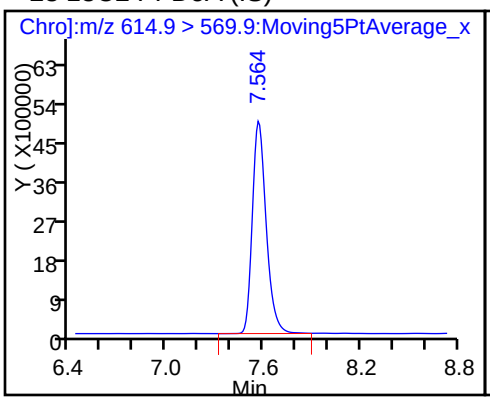
27 Perfluoroundecanoic acid



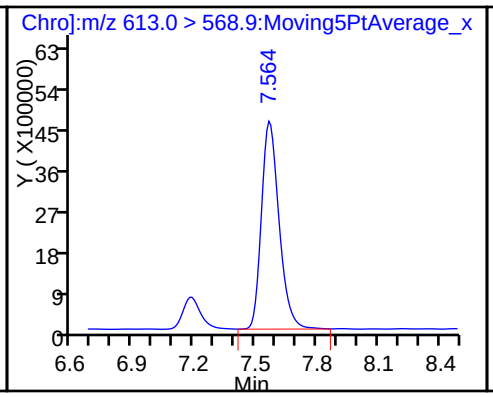
27 Perfluoroundecanoic acid



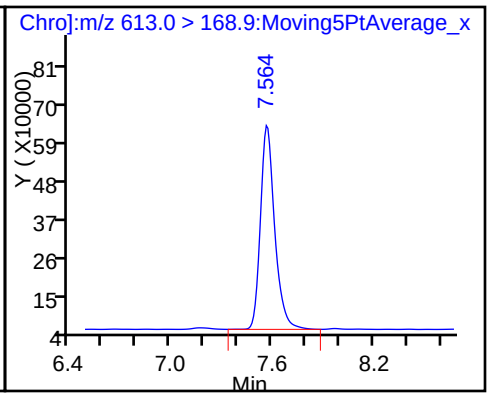
* 28 13C2 PFDoA (IS)



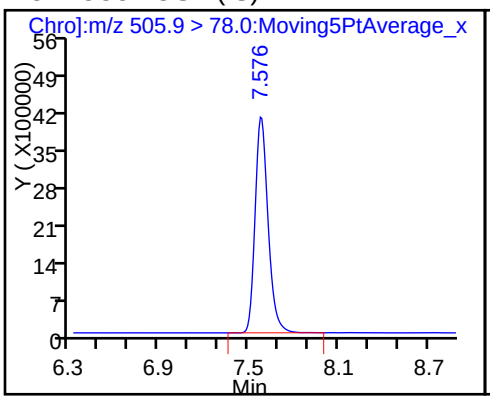
29 Perfluorododecanoic acid



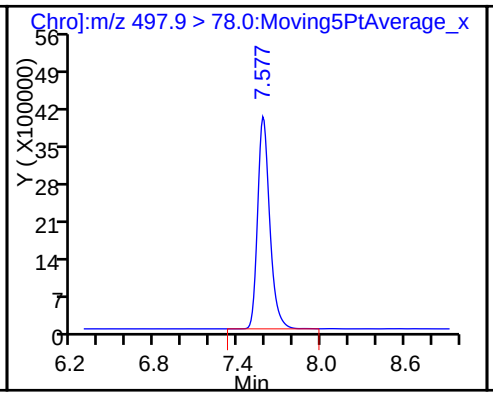
29 Perfluorododecanoic acid



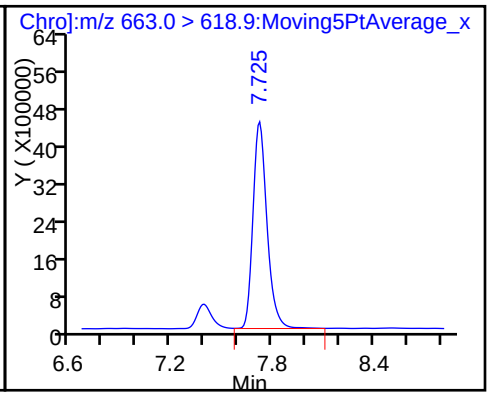
* 31 13C8 FOSA (IS)



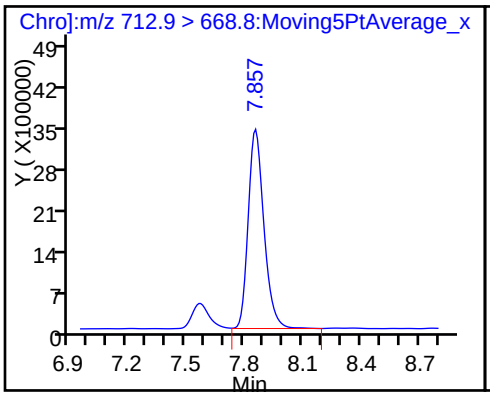
32 Perfluorooctane Sulfonamide



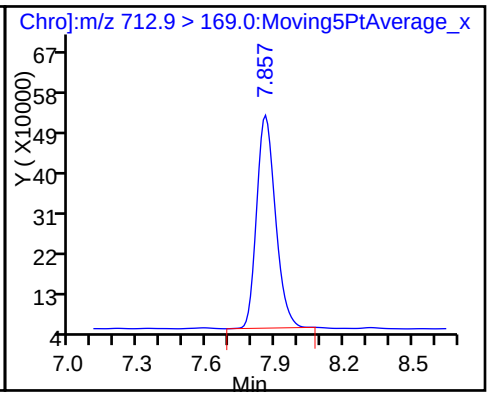
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: | Lab Sample ID: DLCK 280-328740/14

Matrix: Water | Lab File ID: PC516F06019.d

Analysis Method: DV-LC-0012 | Date Collected:

Extraction Method: | Date Extracted:

Sample wt/vol: 1(mL) | Date Analyzed: 06/06/2016 17:05

Con. Extract Vol.: | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 328740 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.419		0.35	0.10
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.433		0.35	0.10
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.446		0.35	0.10
375-95-1	Perfluorononanoic acid (PFNA)	0.439		0.35	0.10
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.456		0.35	0.10
335-67-1	Perfluorooctanoic acid (PFOA)	0.459		0.35	0.10

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	105		60-155
STL01054	13C8 PFOS	106		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06019.d
Lims ID: DLCK L2
Client ID:
Sample Type: QC
Inject. Date: 06-Jun-2016 17:05:17 ALS Bottle#: 0 Worklist Smp#: 14
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: DLCK L2, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 07-Jun-2016 14:09:37 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK003

First Level Reviewer: meyera Date: 07-Jun-2016 13:03:09

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.200	4.465	-0.265		20323348	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	3.850	4.465	-0.615	0.917	1113178	0.5139			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.299	5.336	-0.037	0.899	1426107	0.4894			
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.431	5.440	-0.009	0.862	594584	0.4193			
298.9 > 98.9	5.431	5.440	-0.009	0.862	180646		3.29(2.57-2.57)		
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.431	5.440	-0.009	0.862	594584	0.4193			
298.9 > 98.9	5.431	5.440	-0.009	0.862	180646		3.29(1.80-3.35)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.894	5.885	0.009		23600887	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.894	5.885	0.009	1.000	1181623	0.5087			
313.0 > 118.6	5.894	5.885	0.009	1.000	34359		34.39(34.05-63.23)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.301	6.292	0.009	0.952	1398910	0.4329			
363.0 > 168.9	6.292	6.292	0.0	0.950	395878		3.53(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.300	6.300	0.0		2616206	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.301	6.291	0.010	1.000	564647	0.4464			R
398.9 > 98.9	6.301	6.291	0.010	1.000	164216		3.44(1.30-2.41)		
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.301	6.291	0.010	1.000	564647	0.4464			
398.9 > 98.9	6.301	6.291	0.010	1.000	164216		3.44(1.85-1.85)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
12 Perfluoroheptanesulfonic Acid									7
449.0 > 79.9	6.602	6.621	-0.019	0.960	542028	0.4617			7
449.0 > 98.9	6.612	6.621	-0.009	0.962	184723		2.93(0.00-0.00)		
LOD = 0.4950									
13 Perfluoroheptane Sulfonate									7
449.0 > 79.9	6.602	6.621	-0.019	0.960	542028	0.4617			7
449.0 > 98.9	6.612	6.621	-0.009	0.962	184723		2.93(0.00-0.00)		
LOD = 0.4950									
$ 14 13C8 PFOA									
421.0 > 375.9	6.612	6.631	-0.019	0.999	1593505	0.5225			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.622	6.631	-0.009		34601296	10.0			
16 Perfluorooctanoic acid									R
413.0 > 368.9	6.622	6.632	-0.010	1.000	1900951	0.4594			R
413.0 > 169.0	6.613	6.632	-0.019	0.999	678793		2.80(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.875	6.894	-0.019	1.000	325922	0.5081			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.875	6.904	-0.029		9456457	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.876	6.895	-0.019	1.000	607496	0.4558			R
498.9 > 98.9	6.876	6.895	-0.019	1.000	150123		4.05(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.895	6.914	-0.019		27571989	10.0			
20 Perfluorononanoic acid									R
463.0 > 418.9	6.895	6.924	-0.029	1.000	1486714	0.4391			R
463.0 > 218.9	6.905	6.924	-0.019	1.001	299965		4.96(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.130	7.158	-0.028		28251355	10.0			
23 Perfluorodecanoic acid									
513.0 > 468.9	7.130	7.159	-0.029	1.000	1495646	0.4925			
513.0 > 219.0	7.121	7.159	-0.038	0.999	132217		11.31(10.49-19.48)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.309	7.337	-0.028	1.063	616888	0.4672			
598.9 > 99.0	7.318	7.337	-0.019	1.064	183519		3.36(2.84-2.84)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.309	7.337	-0.028	1.063	616888	0.4672			
598.9 > 99.0	7.318	7.337	-0.019	1.064	183519		3.36(1.99-3.69)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.338	7.366	-0.028		17474457	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.338	7.366	-0.028	1.000	1500233	0.5558			R
563.0 > 268.9	7.329	7.366	-0.038	0.999	174090		8.62(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.507	7.545	-0.038		35228011	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.507	7.545	-0.038	1.000	1831822	0.4508			
613.0 > 168.9	7.517	7.545	-0.028	1.001	218636		8.38(5.96-11.06)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.605	7.642	-0.037		27255655	10.0			
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.605	7.643	-0.038	1.000	1552508	0.5157			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.658	7.696	-0.038	1.020	1763710	0.4613			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.791	7.829	-0.038	1.038	1138690	0.5403			
712.9 > 169.0	7.791	7.829	-0.038	1.038	261736		4.35(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

7 - Failed Limit of Detection

Reagents:

PFC_CAL_stock_00033 Amount Added: 25.00 Units: uL

PFC-IS_00021 Amount Added: 20.00 Units: uL

Report Date: 07-Jun-2016 14:09:45 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06019.d

Injection Date: 06-Jun-2016 17:05:17 Instrument ID: LC_LCMS5

Lims ID: DLCK L2

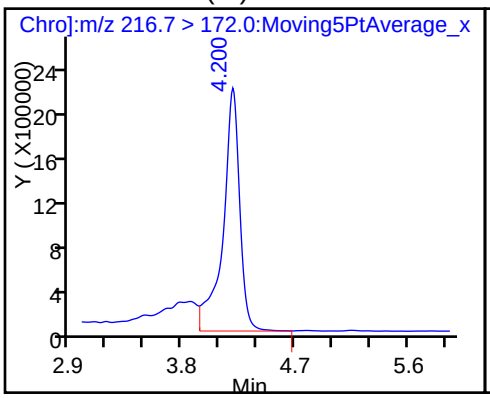
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 14

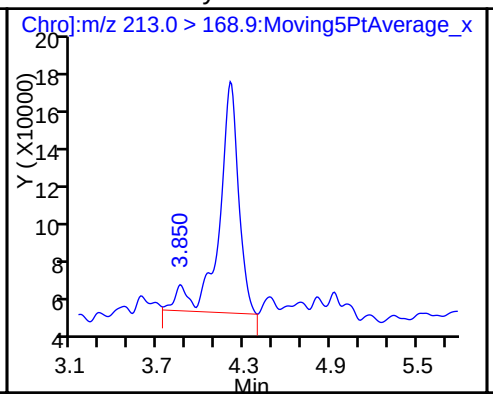
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

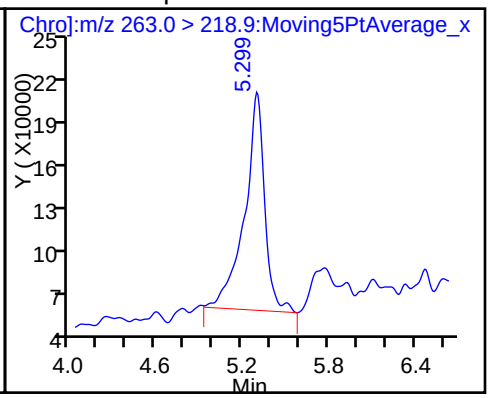
* 1 13C4 PFBA (IS)



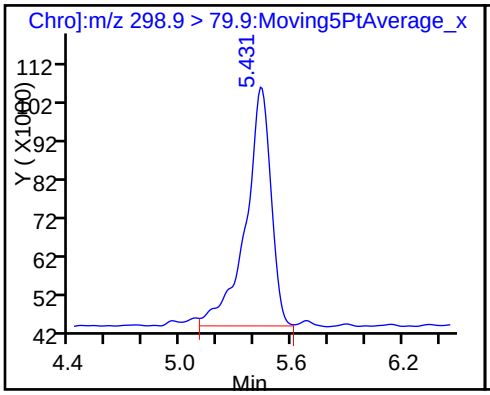
2 Perfluorobutyric acid



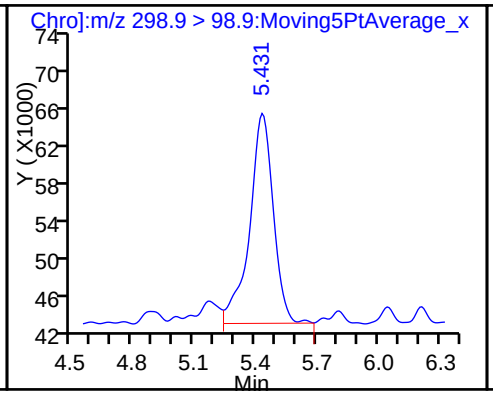
3 Perfluoropentanoic acid



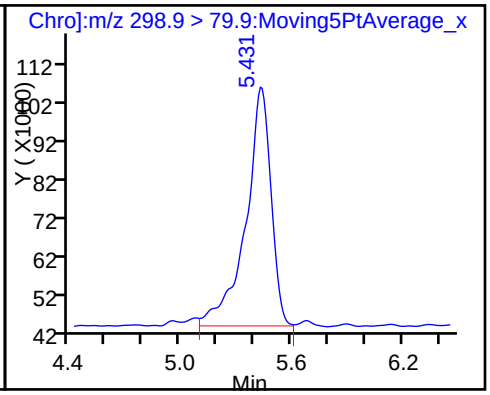
5 Perfluorobutanesulfonic acid



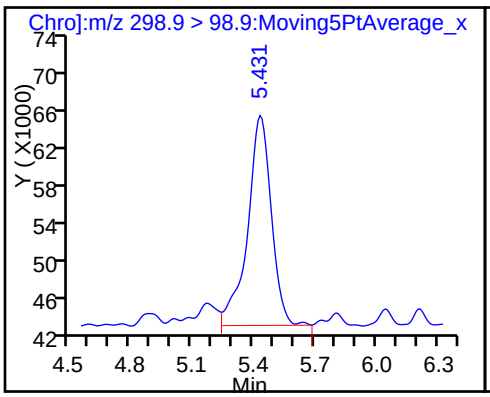
5 Perfluorobutanesulfonic acid



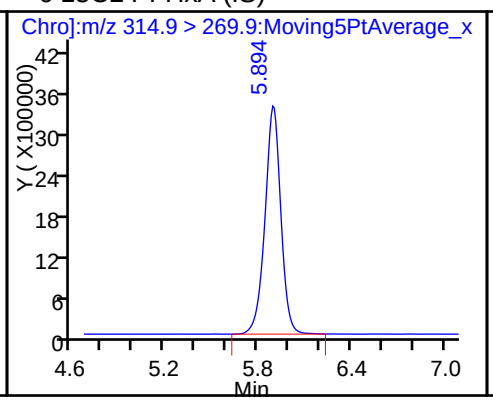
4 Perfluorobutane Sulfonate



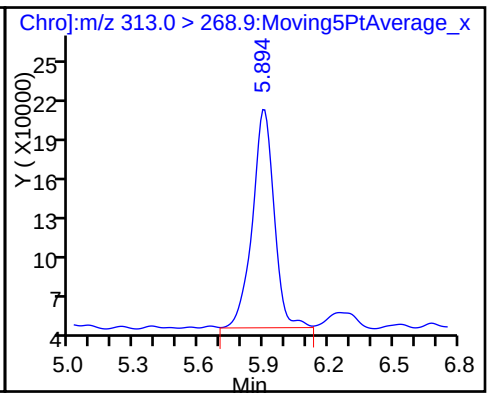
4 Perfluorobutane Sulfonate



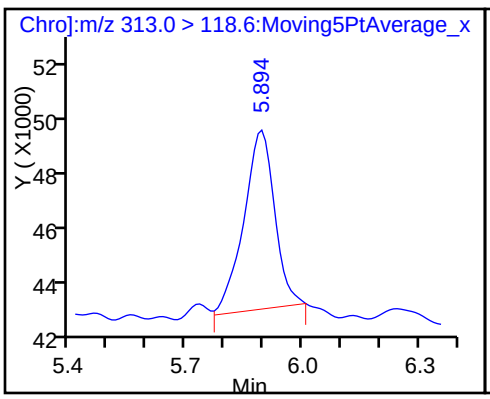
* 6 13C2 PFHxA (IS)



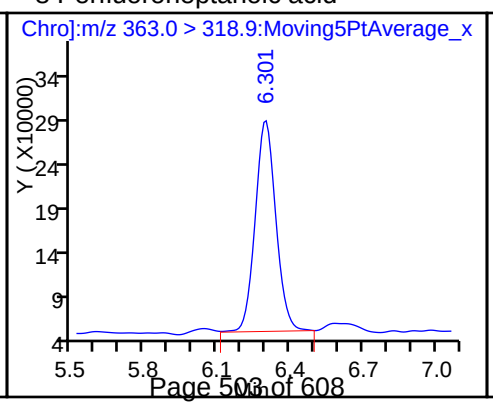
7 Perfluorohexanoic acid



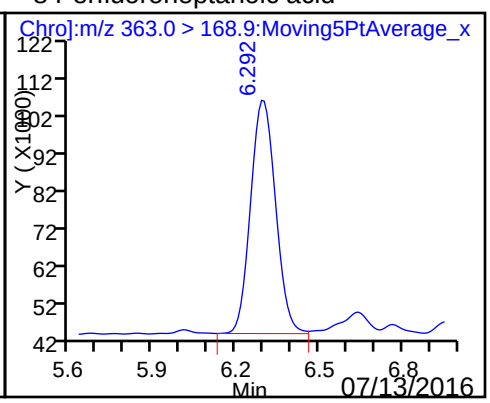
7 Perfluorohexanoic acid



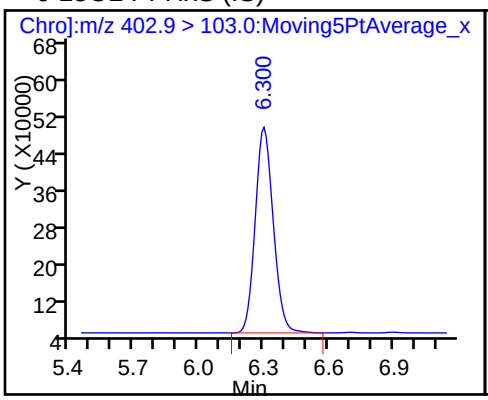
8 Perfluoroheptanoic acid



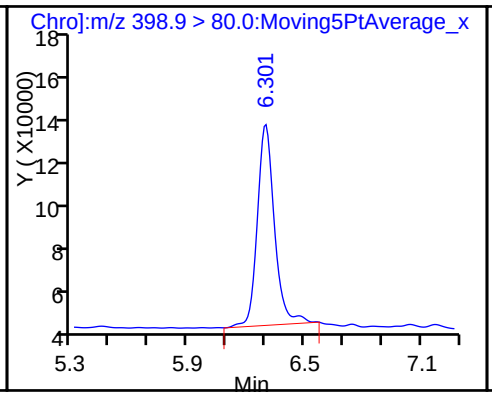
8 Perfluoroheptanoic acid



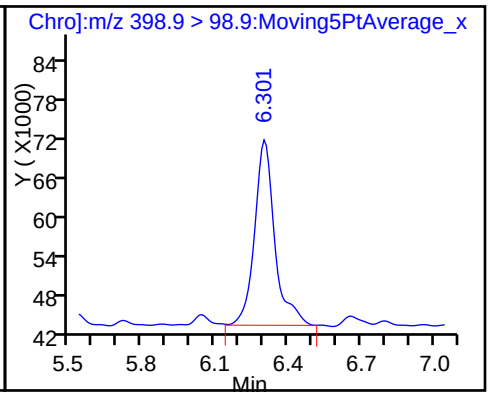
* 9 18O2 PFHxS (IS)



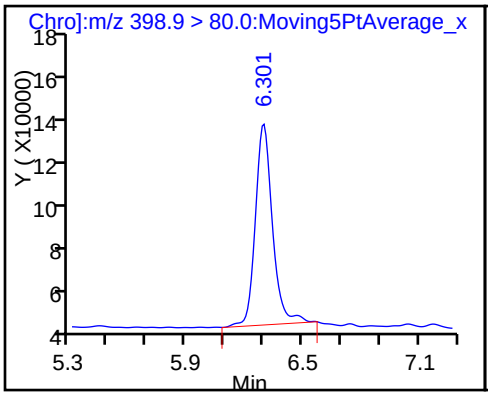
10 Perfluorohexane Sulfonate



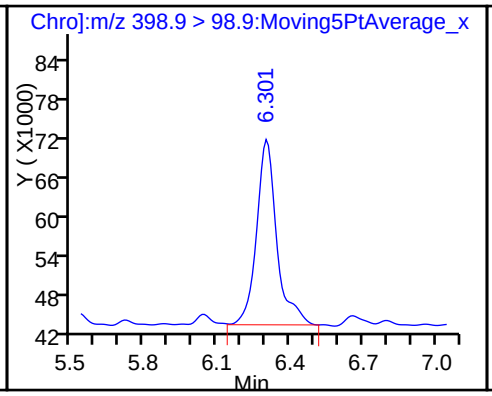
10 Perfluorohexane Sulfonate



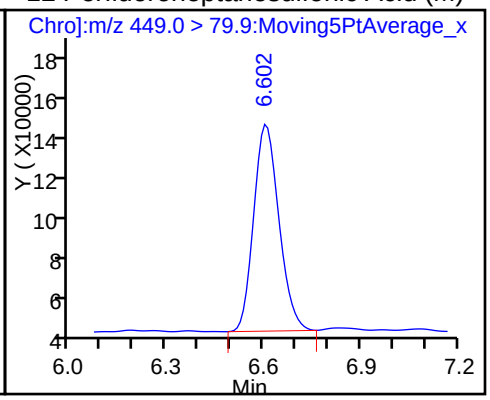
11 Perfluorohexanesulfonic acid



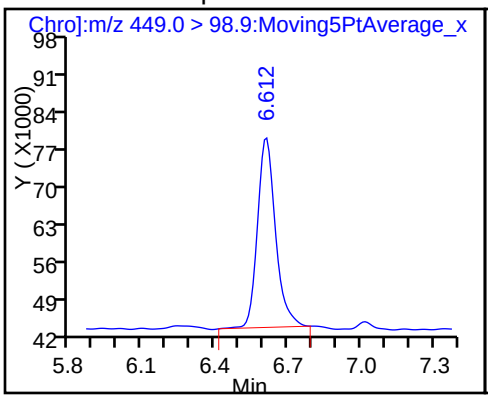
11 Perfluorohexanesulfonic acid



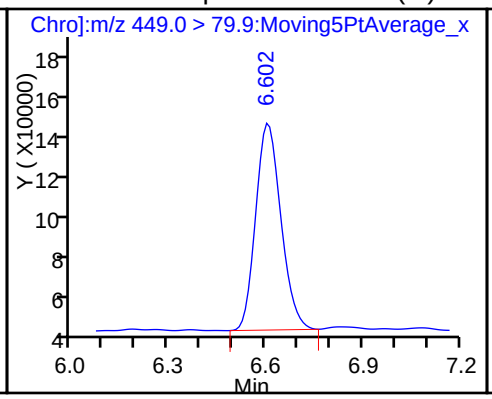
12 Perfluoroheptanesulfonic Acid (M)



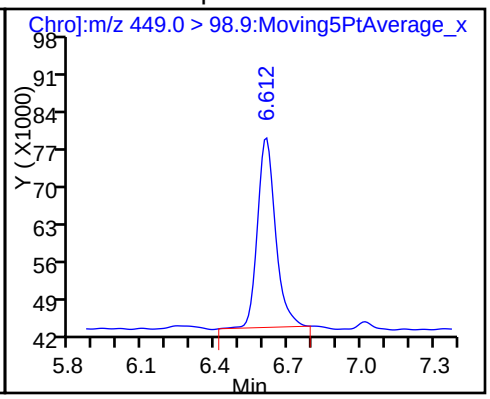
12 Perfluoroheptanesulfonic Acid



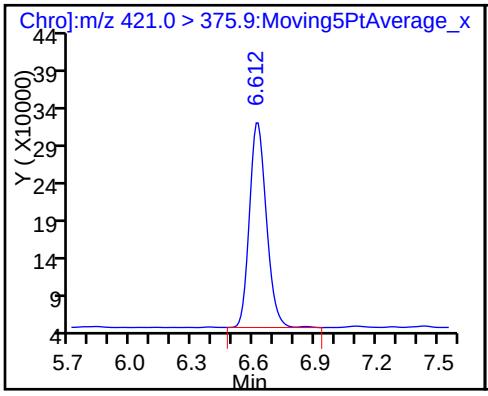
13 Perfluoroheptane Sulfonate (M)



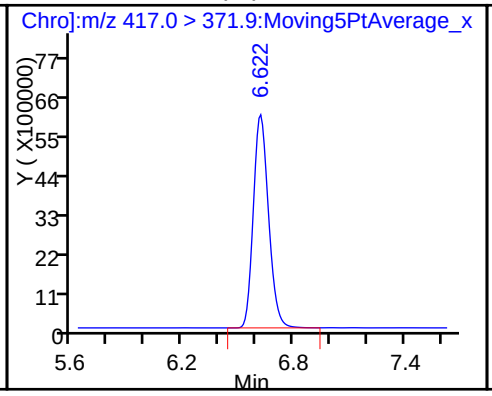
13 Perfluoroheptane Sulfonate



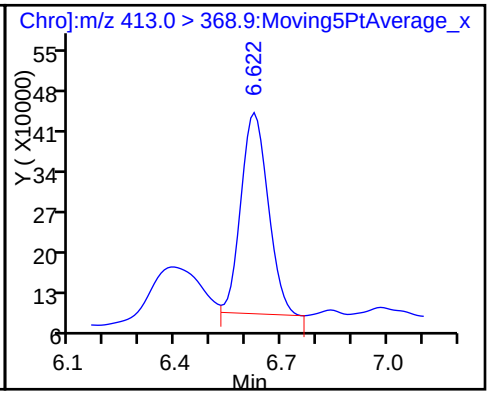
$ 14 13C8 PFOA



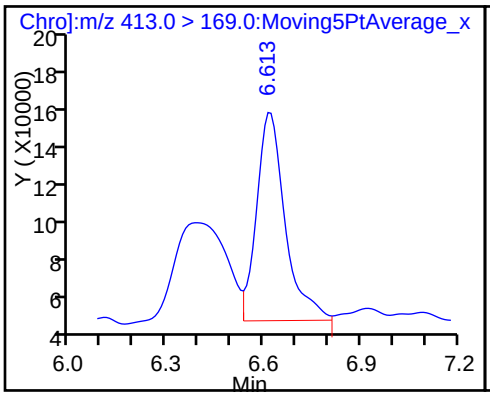
* 15 13C4 PFOA (IS)



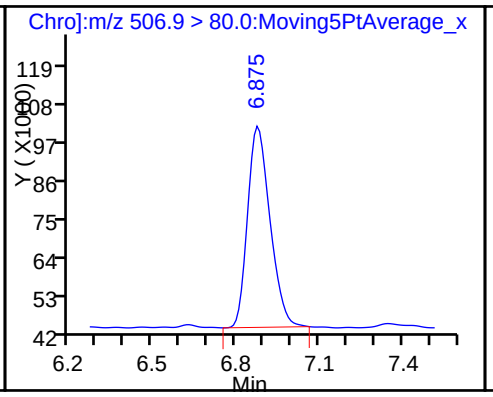
16 Perfluorooctanoic acid



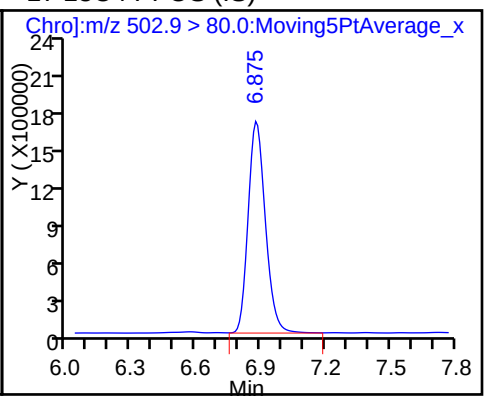
16 Perfluorooctanoic acid



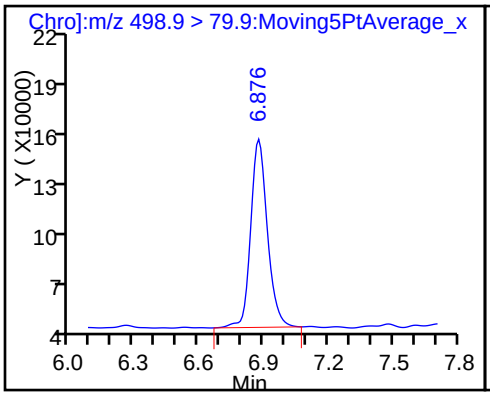
$ 18 13C8 PFOS



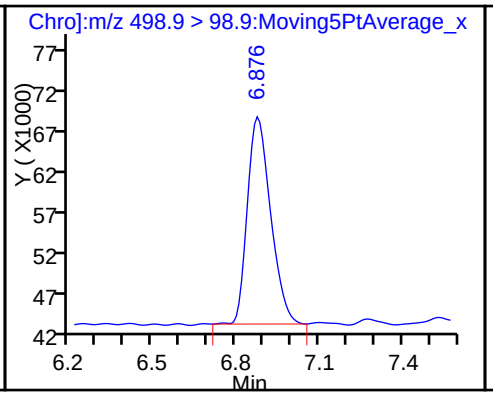
* 17 13C4 PFOS (IS)



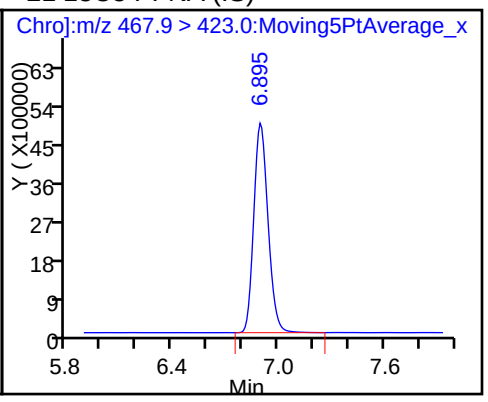
19 Perfluorooctane sulfonic acid



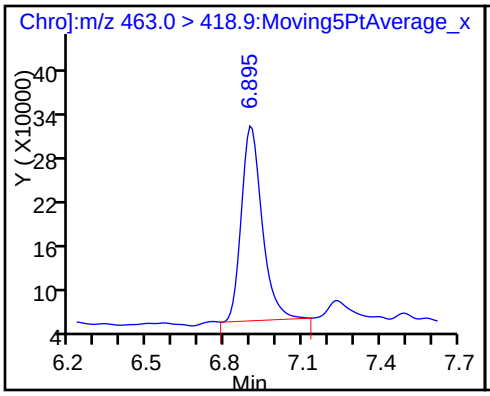
19 Perfluorooctane sulfonic acid



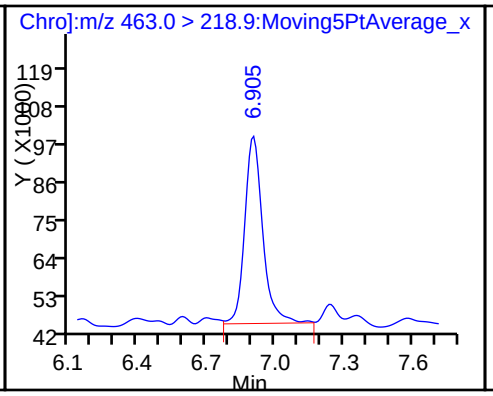
* 21 13C5 PFNA (IS)



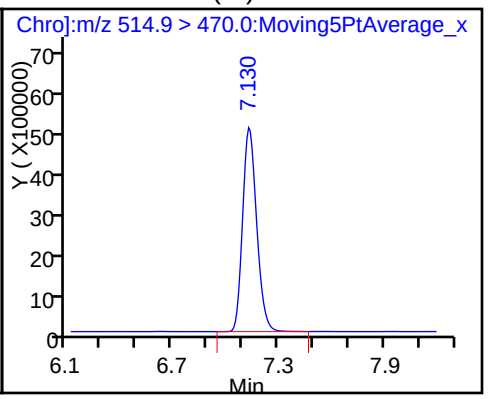
20 Perfluorononanoic acid



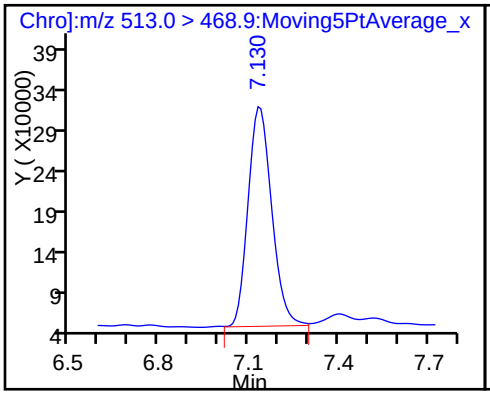
20 Perfluorononanoic acid



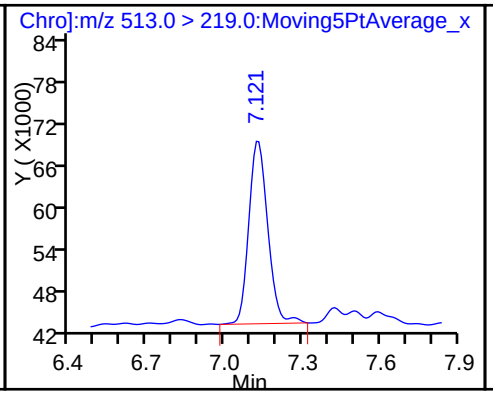
* 22 13C2 PFDA (IS)



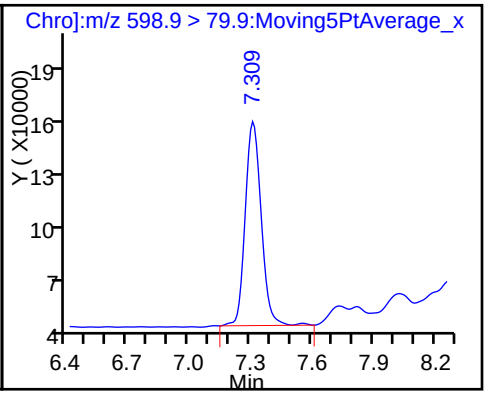
23 Perfluorodecanoic acid



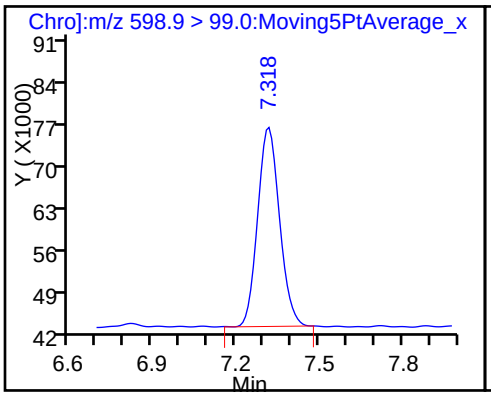
23 Perfluorodecanoic acid



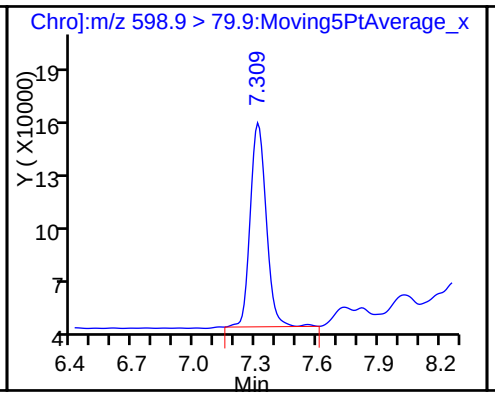
24 Perfluorodecane Sulfonic acid



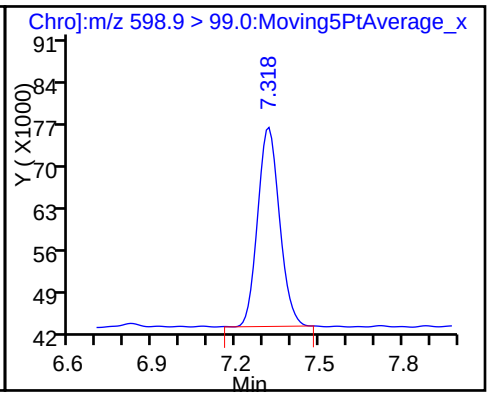
24 Perfluorodecane Sulfonic acid



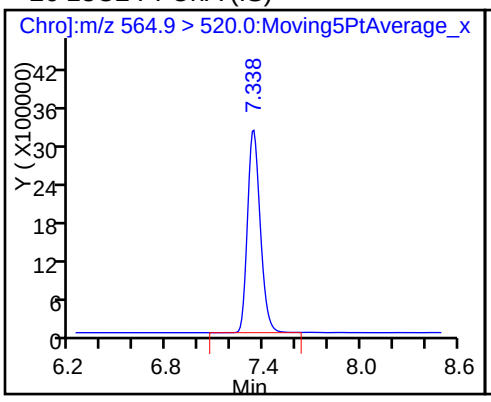
25 Perfluorodecane Sulfonate



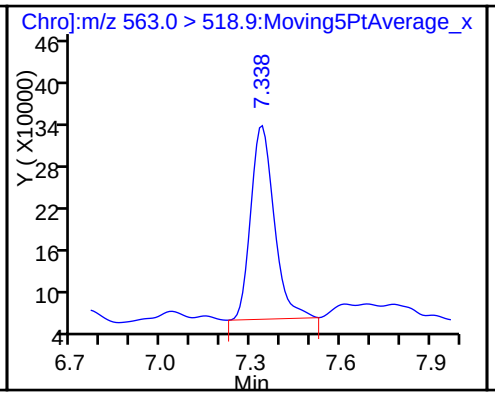
25 Perfluorodecane Sulfonate



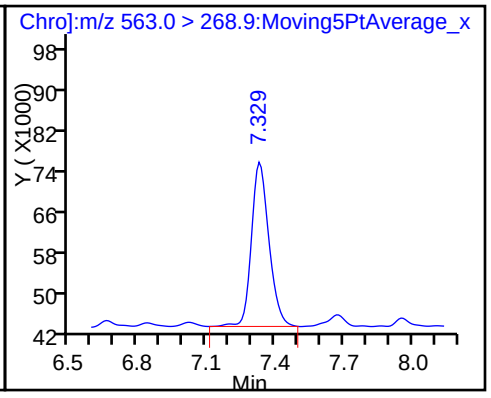
* 26 13C2 PFUnA (IS)



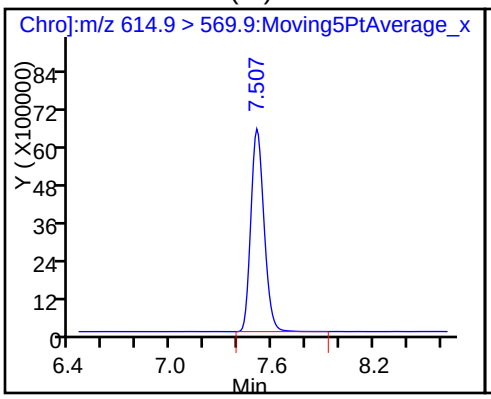
27 Perfluoroundecanoic acid



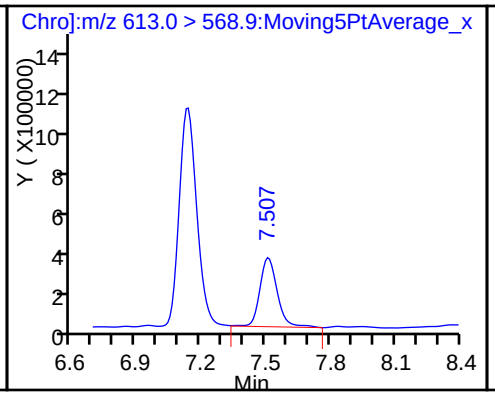
27 Perfluoroundecanoic acid



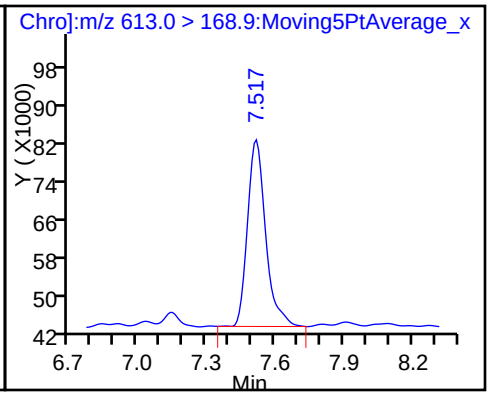
* 28 13C2 PFDoA (IS)



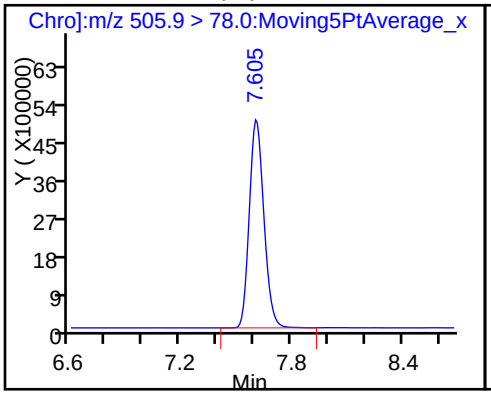
29 Perfluorododecanoic acid



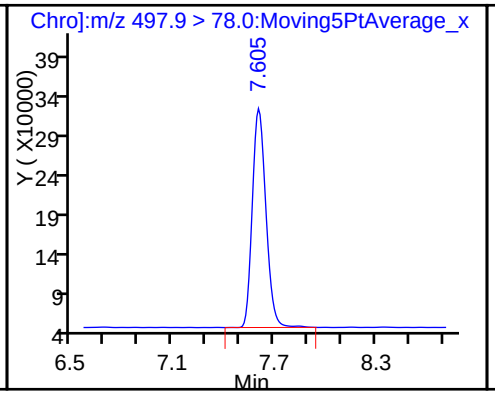
29 Perfluorododecanoic acid



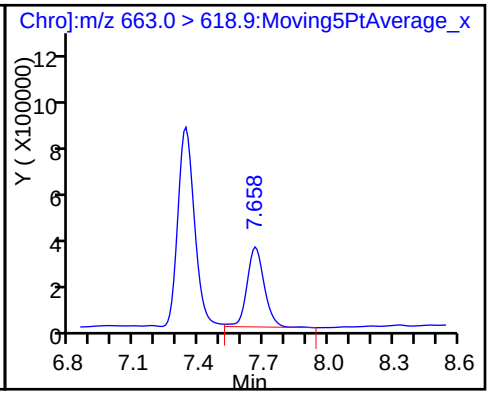
* 31 13C8 FOSA (IS)



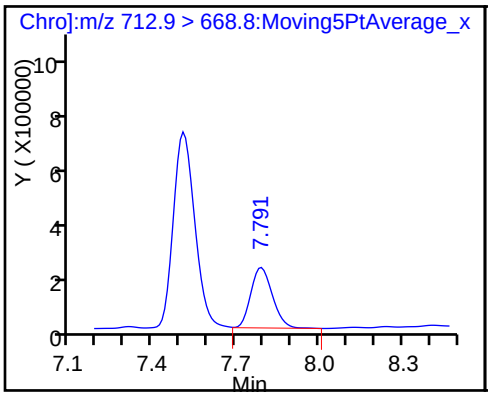
32 Perfluorooctane Sulfonamide



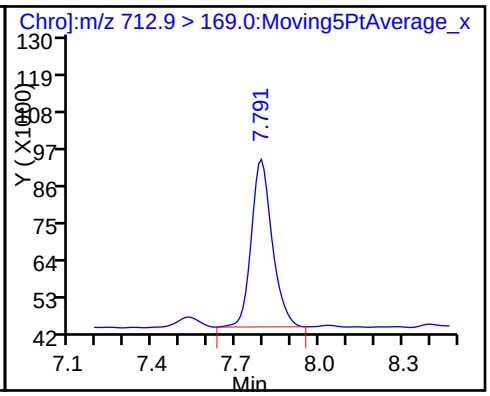
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB001-0.5 MS | Lab Sample ID: 280-85171-2 MS

Matrix: Solid | Lab File ID: PC516G07044.d

Analysis Method: DV-LC-0012 | Date Collected: 06/29/2016 16:55

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.97(g) | Date Analyzed: 07/07/2016 15:04

Con. Extract Vol.: 20.4(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 33.2 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 332793 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	19.24		1.11	0.19
375-85-9	Perfluoroheptanoic acid (PFHpA)	27.59		1.11	0.17
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	41.52		1.11	0.39
375-95-1	Perfluorononanoic acid (PFNA)	25.23		1.11	0.31
335-67-1	Perfluorooctanoic acid (PFOA)	29.18		1.11	0.32

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	102		57-153
STL01054	13C8 PFOS	99		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07044.d
Lims ID: 280-85171-A-2-B MS
Client ID:
Sample Type: MS
Inject. Date: 07-Jul-2016 15:04:37 ALS Bottle#: 0 Worklist Smp#: 9
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85171-A-2-B MS, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 08-Jul-2016 09:15:01 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK002

First Level Reviewer: fiedlerh Date: 08-Jul-2016 08:09:48

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.579	4.569	0.010		25736056	9.80			
2 Perfluorobutyric acid									
213.0 > 168.9	4.579	4.570	0.009	1.000	25705499	9.13			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.611	5.592	0.019	0.908	23681740	10.8			
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.724	5.705	0.019	0.868	7888247	6.91			
298.9 > 98.9	5.724	5.705	0.019	0.868	2556578		3.09(1.80-3.35)		
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.724	5.705	0.019	0.868	7888247	6.91			
298.9 > 98.9	5.724	5.705	0.019	0.868	2556578		3.09(2.57-2.57)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	6.178	6.141	0.037		18340488	9.80			
7 Perfluorohexanoic acid									
313.0 > 268.9	6.179	6.141	0.038	1.000	16730079	9.46			
313.0 > 118.6	6.179	6.141	0.038	1.000	421481		39.69(34.05-63.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.594	6.537	0.057		2026624	9.27			
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.594	6.538	0.056	1.000	12574510	14.9			
398.9 > 98.9	6.594	6.538	0.056	1.000	4230879		2.97(1.85-1.85)		
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.594	6.538	0.056	1.000	12574510	14.9			R
398.9 > 98.9	6.594	6.538	0.056	1.000	4230879		2.97(1.30-2.41)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.595	6.538	0.057	0.954	23712603	9.91			
363.0 > 168.9	6.585	6.538	0.047	0.952	6355870		3.73(3.35-6.23)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.905	6.858	0.047	0.963	9251637	12.6			
449.0 > 98.9	6.905	6.858	0.047	0.963	2648415		3.49(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.905	6.858	0.047	0.963	9251637	12.6			
449.0 > 98.9	6.905	6.858	0.047	0.963	2648415		3.49(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.915	6.868	0.047	1.000	21842986	9.82			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.916	6.868	0.048		26956020	9.80			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.916	6.868	0.048	1.000	30016381	10.5			
413.0 > 169.0	6.916	6.868	0.048	1.000	9346506		3.21(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	7.169	7.131	0.038	1.000	3334787	8.97			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	7.169	7.131	0.038		5697145	9.37			
19 Perfluorooctane sulfonic acid									RE
498.9 > 79.9	7.169	7.131	0.038	1.000	168096200	237.7			RE
498.9 > 98.9	7.169	7.131	0.038	1.000	55397084		3.03(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	7.198	7.160	0.038		15384201	9.80			
20 Perfluorononanoic acid									
463.0 > 418.9	7.199	7.151	0.048	1.000	15965407	9.07			
463.0 > 218.9	7.199	7.151	0.048	1.000	2456519		6.50(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.424	7.386	0.038		23453697	9.80			
23 Perfluorodecanoic acid									R
513.0 > 468.9	7.424	7.386	0.038	1.000	22786921	9.45			R
513.0 > 219.0	7.424	7.386	0.038	1.000	2265033		10.06(10.49-19.48)		
25 Perfluorodecane Sulfonate									R
598.9 > 79.9	7.593	7.555	0.038	1.059	9328015	12.4			R
598.9 > 99.0	7.593	7.555	0.038	1.059	2338130		3.99(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.593	7.555	0.038	1.059	9328015	12.4			
598.9 > 99.0	7.593	7.555	0.038	1.059	2338130		3.99(2.84-2.84)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.612	7.584	0.028		13767678	9.80			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.622	7.584	0.038	1.001	18435775	9.26			R
563.0 > 268.9	7.622	7.584	0.038	1.001	2469477		7.47(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.782	7.753	0.029		28935670	9.80			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.782	7.754	0.028	1.000	26789261	8.83			
613.0 > 168.9	7.782	7.754	0.028	1.000	3294931		8.13(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.832	7.870	-0.038		18434993	9.80			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.833	7.871	-0.038	1.000	18874310	9.24			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.933	7.895	0.038	1.019	21481728	7.81			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	8.065	8.027	0.038	1.036	14034101	8.05			
712.9 > 169.0	8.065	8.027	0.038	1.036	1984937		7.07(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

E - Exceeded Maximum Amount

Report Date: 08-Jul-2016 09:15:34 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07044.d

Injection Date: 07-Jul-2016 15:04:37 Instrument ID: LC_LCMS5

Lims ID: 280-85171-A-2-B MS

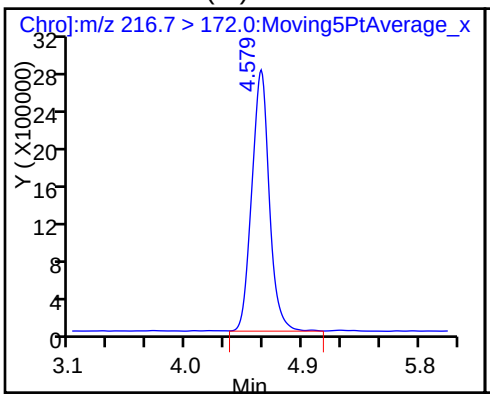
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 9

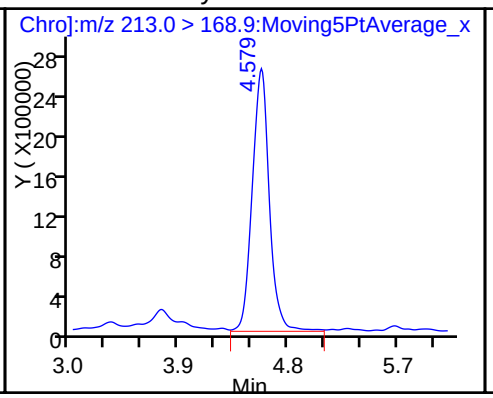
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

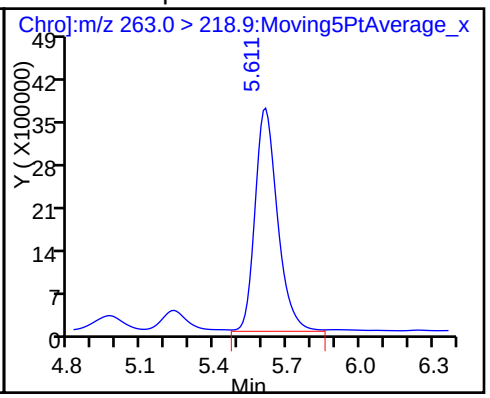
* 1 13C4 PFBA (IS)



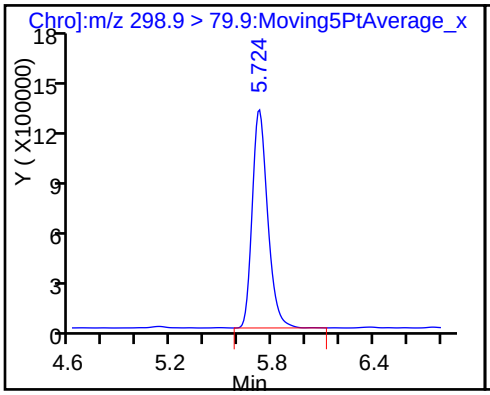
2 Perfluorobutyric acid



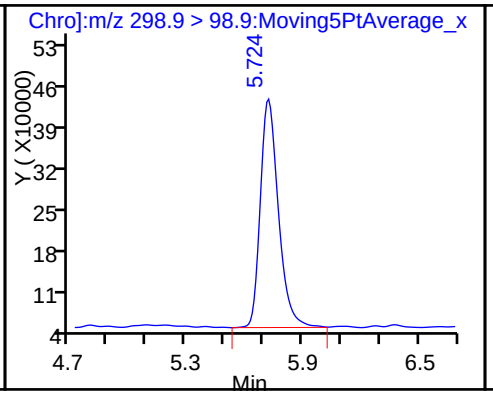
3 Perfluoropentanoic acid



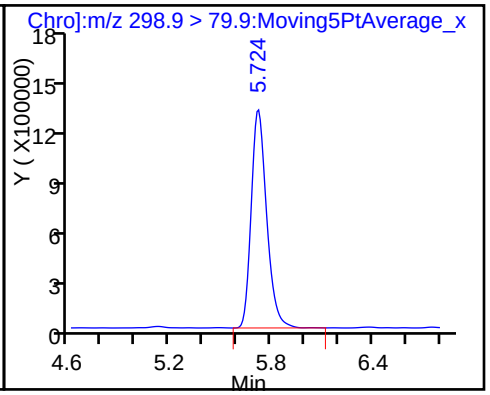
4 Perfluorobutane Sulfonate



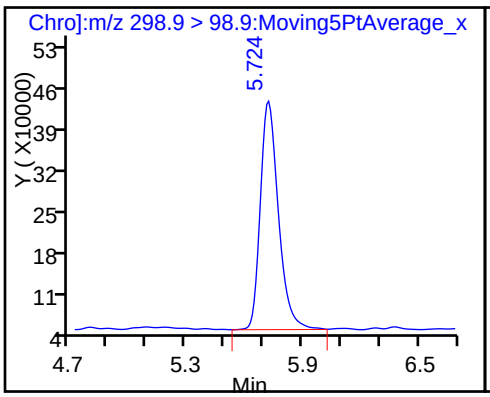
4 Perfluorobutane Sulfonate



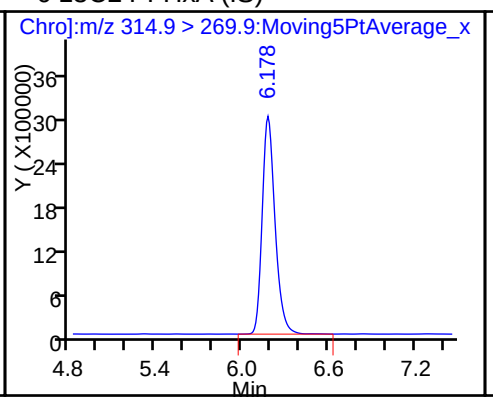
5 Perfluorobutanesulfonic acid



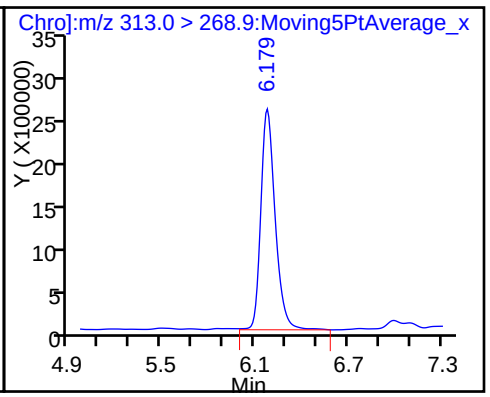
5 Perfluorobutanesulfonic acid



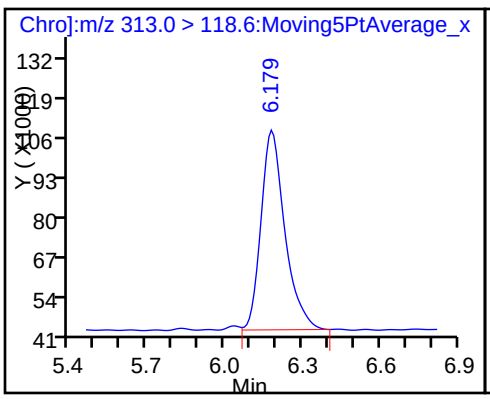
* 6 13C2 PFHxA (IS)



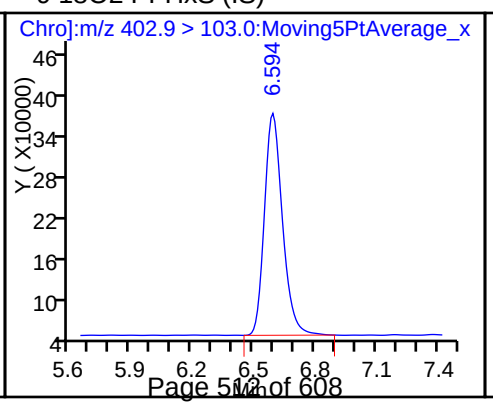
7 Perfluorohexanoic acid



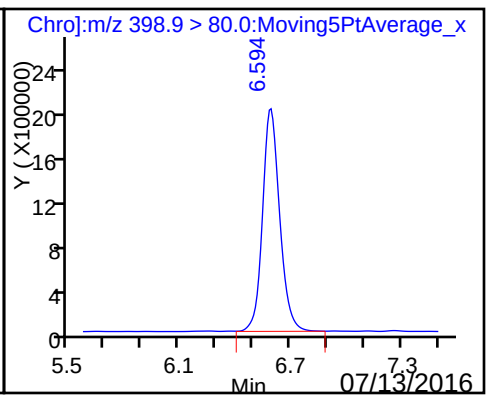
7 Perfluorohexanoic acid



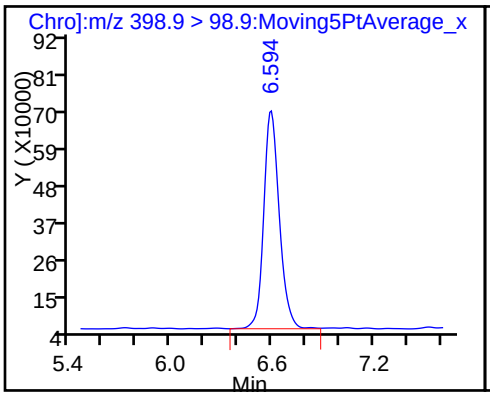
* 9 18O2 PFHxS (IS)



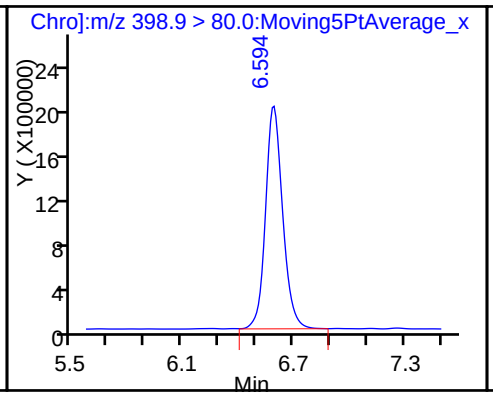
11 Perfluorohexanesulfonic acid



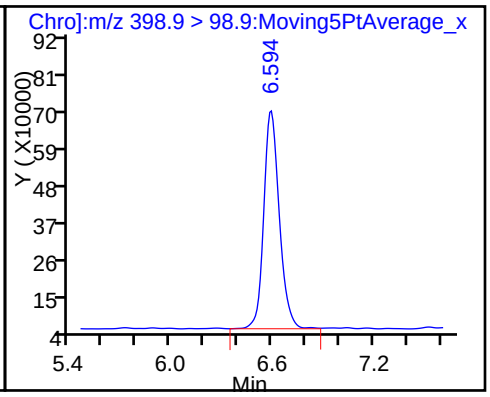
11 Perfluorohexanesulfonic acid



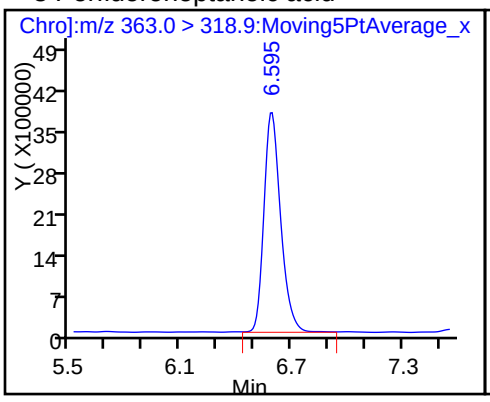
10 Perfluorohexane Sulfonate



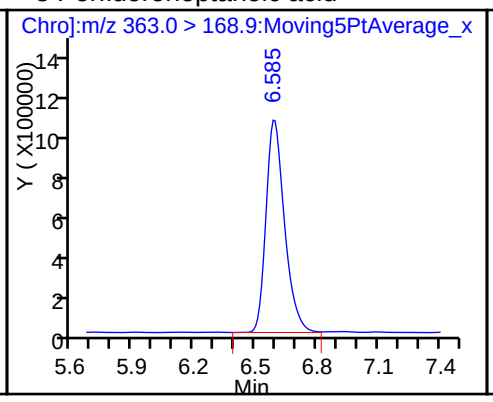
10 Perfluorohexane Sulfonate



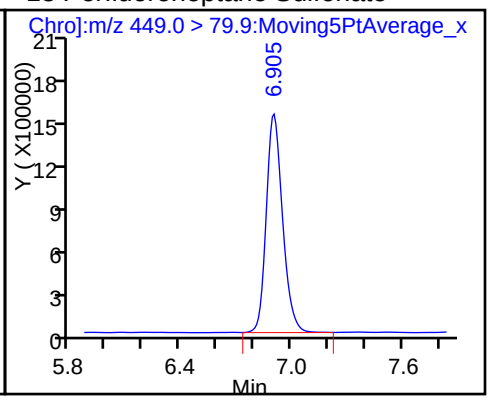
8 Perfluoroheptanoic acid



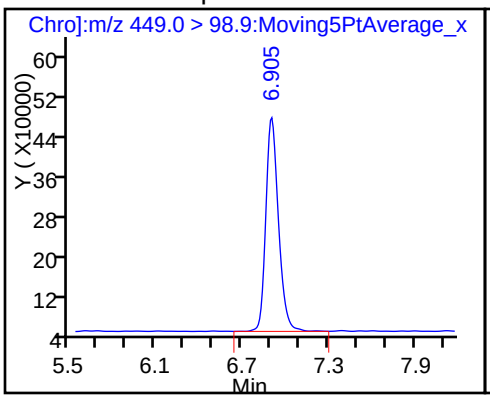
8 Perfluoroheptanoic acid



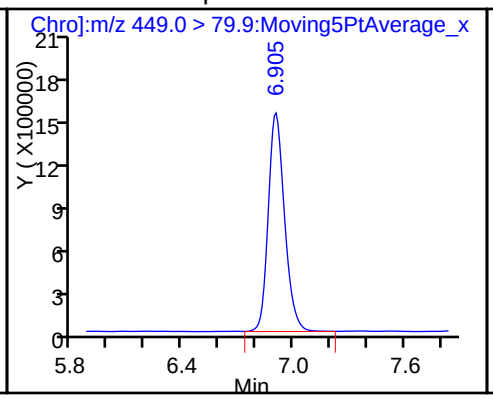
13 Perfluoroheptane Sulfonate



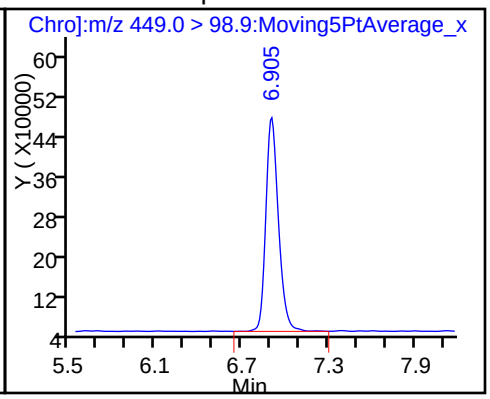
13 Perfluoroheptane Sulfonate



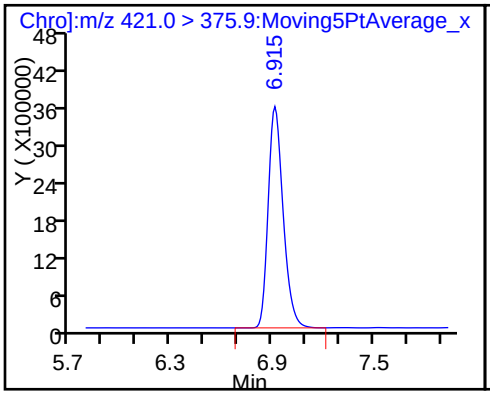
12 Perfluoroheptanesulfonic Acid



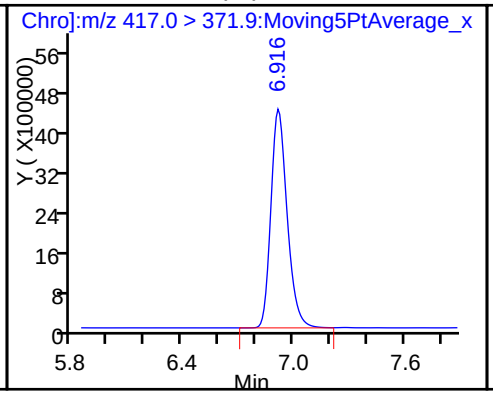
12 Perfluoroheptanesulfonic Acid



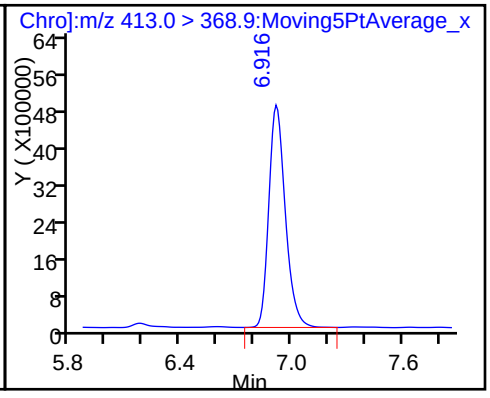
$ 14 13C8 PFOA



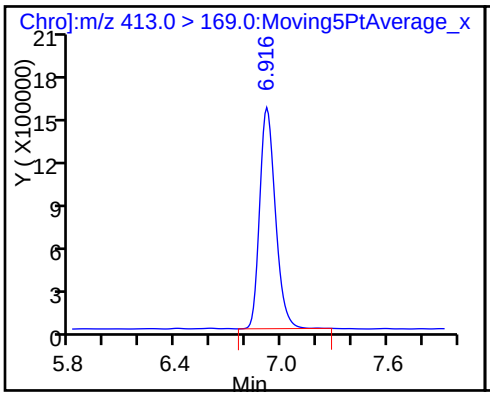
* 15 13C4 PFOA (IS)



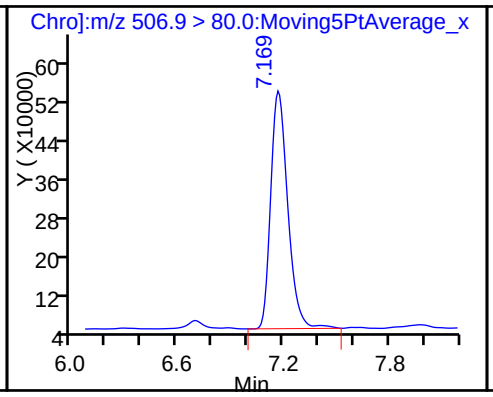
16 Perfluorooctanoic acid



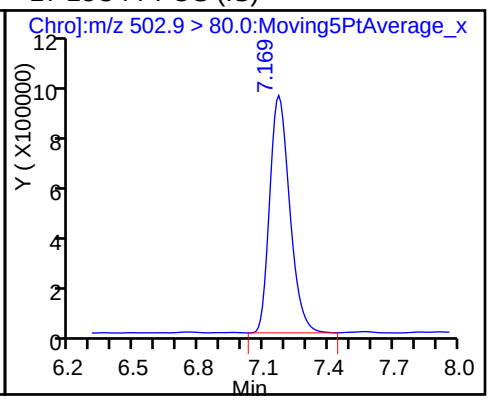
16 Perfluorooctanoic acid



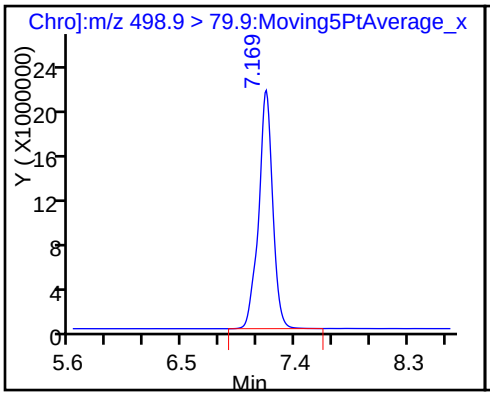
$ 18 13C8 PFOS



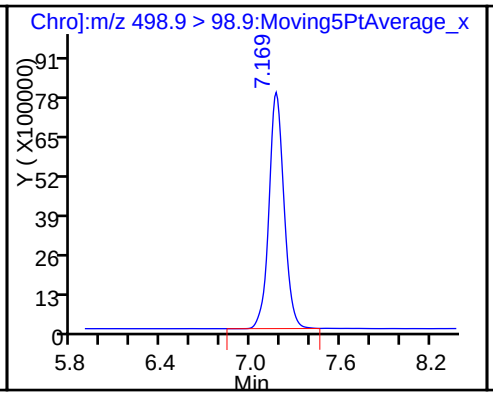
* 17 13C4 PFOS (IS)



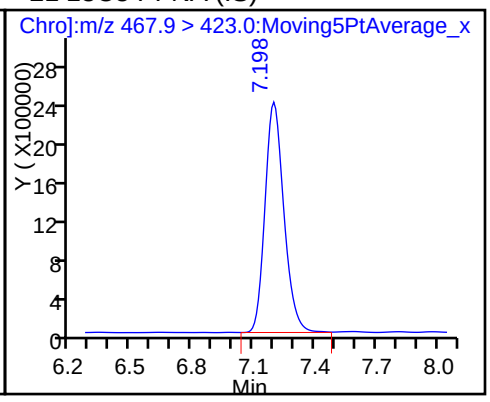
19 Perfluorooctane sulfonic acid



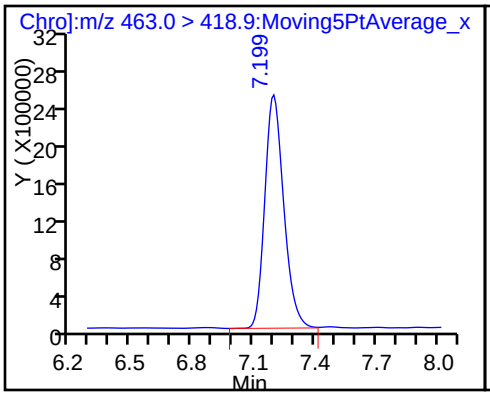
19 Perfluorooctane sulfonic acid



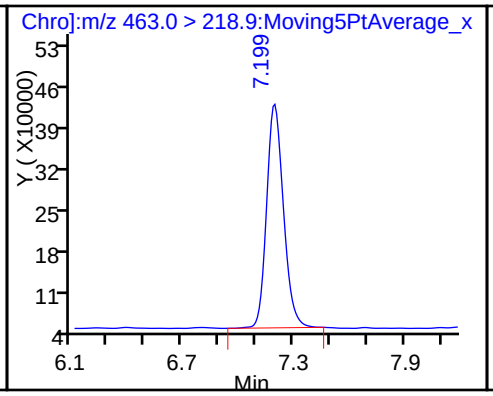
* 21 13C5 PFNA (IS)



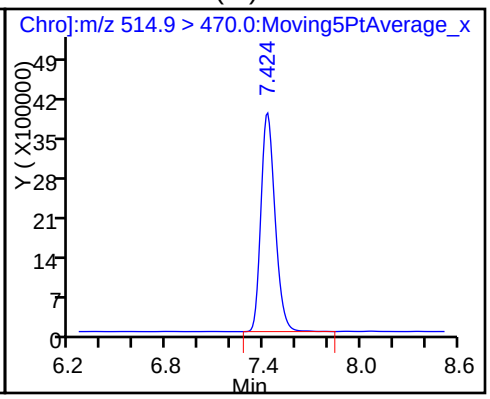
20 Perfluorononanoic acid



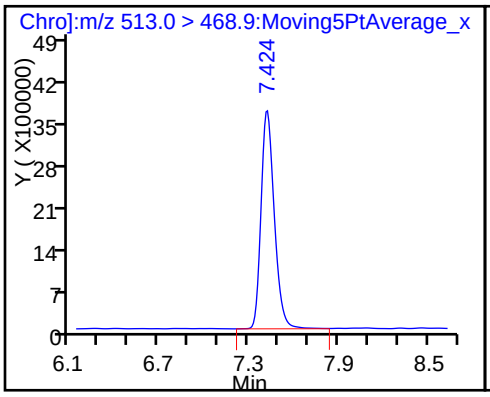
20 Perfluorononanoic acid



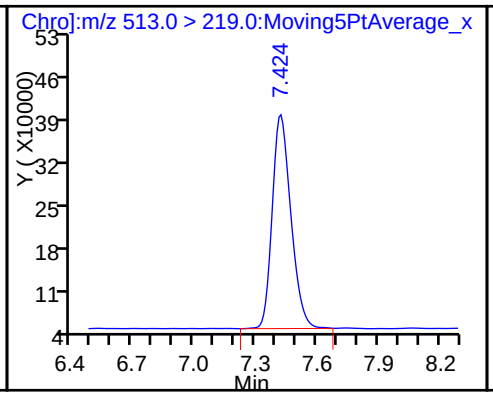
* 22 13C2 PFDA (IS)



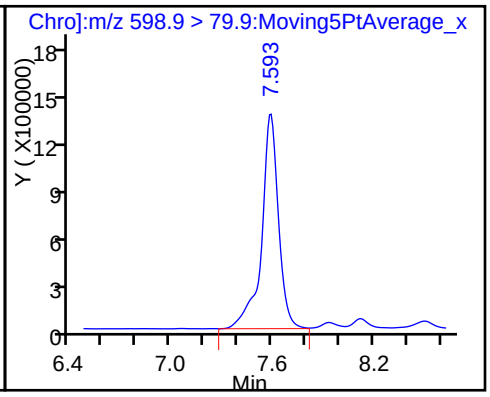
23 Perfluorodecanoic acid



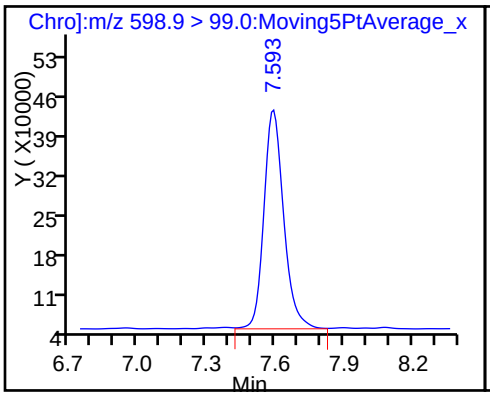
23 Perfluorodecanoic acid



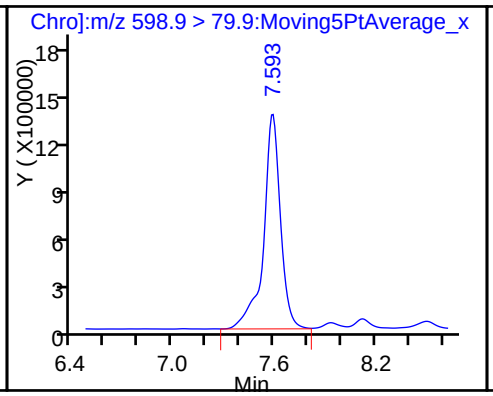
25 Perfluorodecane Sulfonate



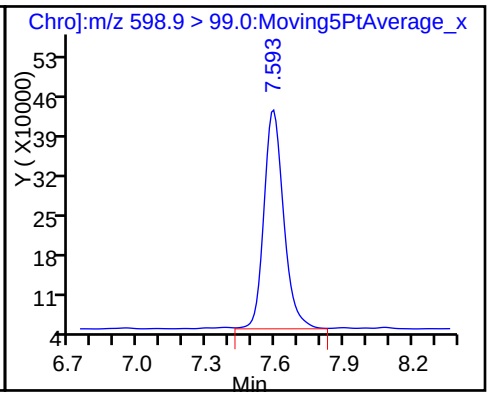
25 Perfluorodecane Sulfonate



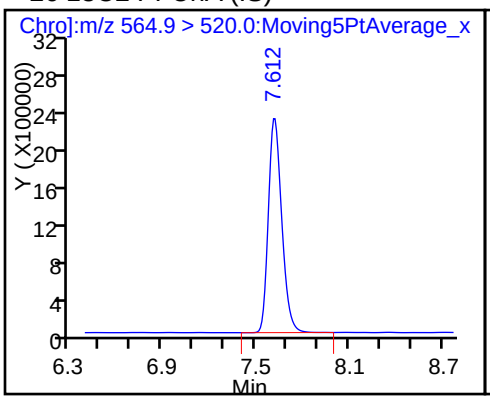
24 Perfluorodecane Sulfonic acid



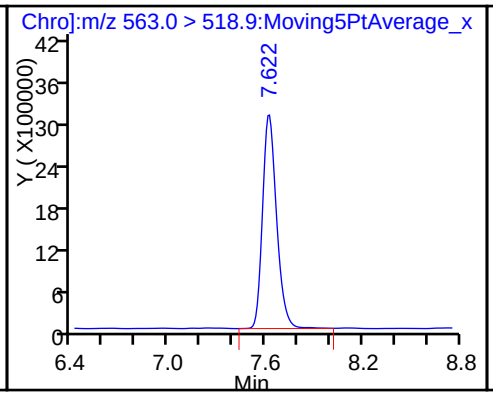
24 Perfluorodecane Sulfonic acid



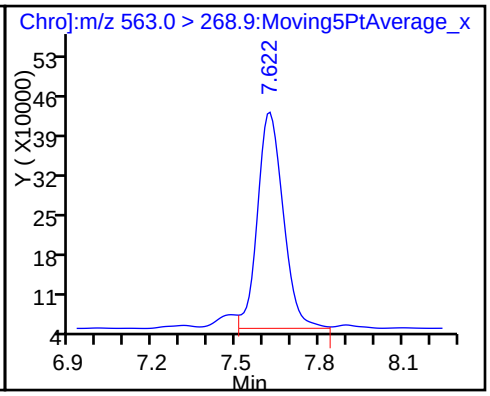
* 26 13C2 PFUnA (IS)



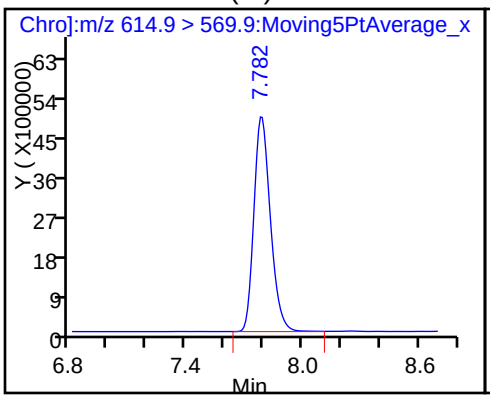
27 Perfluoroundecanoic acid



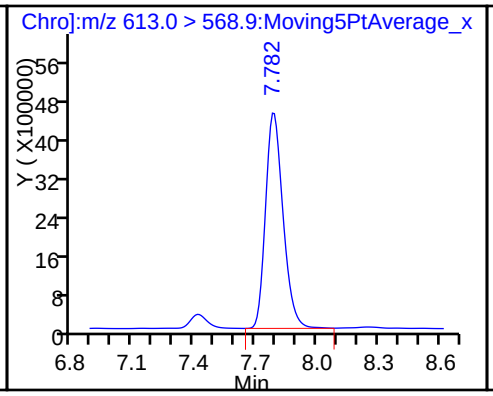
27 Perfluoroundecanoic acid



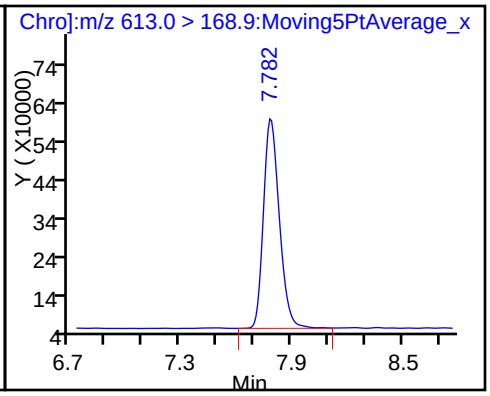
* 28 13C2 PFDoA (IS)



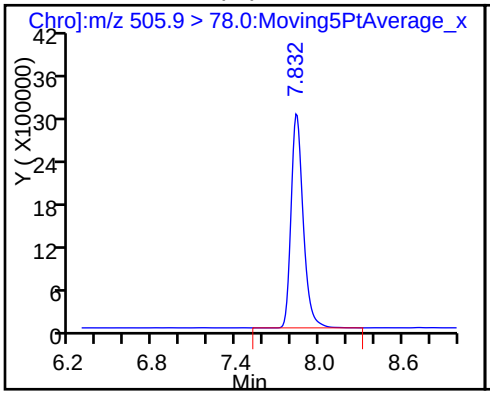
29 Perfluorododecanoic acid



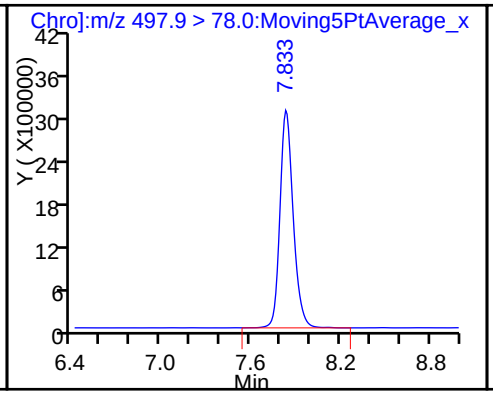
29 Perfluorododecanoic acid



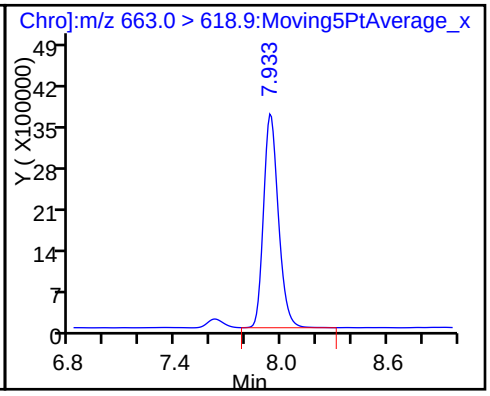
* 31 13C8 FOSA (IS)



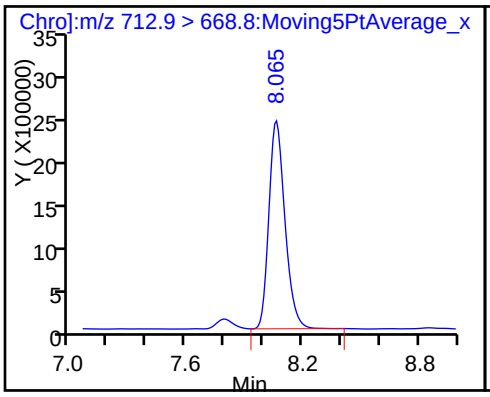
32 Perfluorooctane Sulfonamide



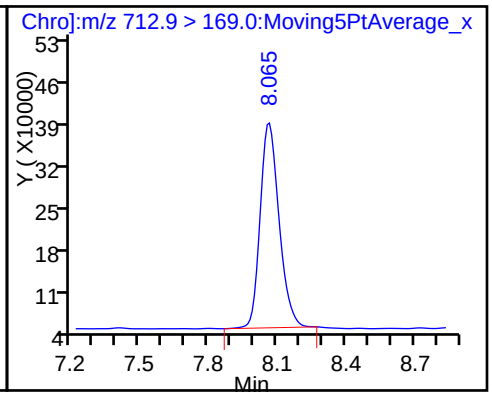
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB001-0.5 MS DL | Lab Sample ID: 280-85171-2 MS DL

Matrix: Solid | Lab File ID: PC516G08010.d

Analysis Method: DV-LC-0012 | Date Collected: 06/29/2016 16:55

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.97(g) | Date Analyzed: 07/08/2016 13:25

Con. Extract Vol.: 20.4(mL) | Dilution Factor: 5

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 33.2 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 333083 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	639.7		5.57	0.97

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	103	D	57-153
STL01054	13C8 PFOS	106	D	70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08010.d
Lims ID: 280-85171-A-2-B MS
Client ID:
Sample Type: MS
Inject. Date: 08-Jul-2016 13:25:52 ALS Bottle#: 0 Worklist Smp#: 5
Injection Vol: 25.0 ul Dil. Factor: 5.0000
Sample Info: 280-85171-A-2-B MS, Sample
Misc. Info.: 5x
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 11-Jul-2016 11:14:47 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK031

First Level Reviewer: fiedlerh Date: 11-Jul-2016 10:47:52

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.342	4.219	0.123		5928244	1.96			
2 Perfluorobutyric acid									
213.0 > 168.9	4.342	4.229	0.113	1.000	5847220	1.81			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.336	5.242	0.094	0.905	5457632	2.08			
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.450	5.355	0.095	0.864	1625886	1.54			
298.9 > 98.9	5.450	5.355	0.095	0.864	540429		3.01(1.80-3.35)		
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.450	5.355	0.095	0.864	1625886	1.54			
298.9 > 98.9	5.450	5.355	0.095	0.864	540429		3.01(2.57-2.57)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.894	5.837	0.057		4333697	1.96			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.894	5.828	0.066	1.000	3928354	1.86			
313.0 > 118.6	5.894	5.828	0.066	1.000	142993		27.47(34.05-63.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.310	6.272	0.038		375942	1.85			
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.320	6.272	0.048	1.002	2641067	3.31			
398.9 > 98.9	6.320	6.272	0.048	1.002	956435		2.76(1.85-1.85)		
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.320	6.272	0.048	1.002	2641067	3.31			R
398.9 > 98.9	6.320	6.272	0.048	1.002	956435		2.76(1.30-2.41)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.311	6.273	0.038	0.948	5196926	1.87			
363.0 > 168.9	6.320	6.273	0.047	0.949	1349486		3.85(3.35-6.23)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.650	6.602	0.048	0.958	1943751	1.94			
449.0 > 98.9	6.640	6.602	0.038	0.957	598960		3.25(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.650	6.602	0.048	0.958	1943751	1.94			
449.0 > 98.9	6.640	6.602	0.038	0.957	598960		3.25(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.660	6.612	0.048	1.000	5129024	1.98			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.660	6.612	0.048		6161521	1.96			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.660	6.613	0.047	1.000	6997158	2.08			
413.0 > 169.0	6.660	6.613	0.047	1.000	2265415		3.09(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.941	6.884	0.057	1.000	992887	1.93			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.942	6.885	0.057	1.000	44412903	46.0			R
498.9 > 98.9	6.942	6.885	0.057	1.000	14814277		3.00(1.31-2.43)		
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.942	6.885	0.057		1554846	1.87			
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.962	6.905	0.057		4374849	1.96			
20 Perfluorononanoic acid									
463.0 > 418.9	6.962	6.905	0.057	1.000	4704791	1.84			
463.0 > 218.9	6.971	6.905	0.066	1.001	730190		6.44(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.215	7.158	0.057		4911395	1.96			
23 Perfluorodecanoic acid									
513.0 > 468.9	7.216	7.159	0.057	1.000	4939737	1.93			
513.0 > 219.0	7.225	7.159	0.066	1.001	411133		12.01(10.49-19.48)		
25 Perfluorodecane Sulfonate									R
598.9 > 79.9	7.404	7.347	0.057	1.067	1827155	1.75			R
598.9 > 99.0	7.404	7.347	0.057	1.067	444811		4.11(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.404	7.347	0.057	1.067	1827155	1.75			
598.9 > 99.0	7.404	7.347	0.057	1.067	444811		4.11(2.84-2.84)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.432	7.376	0.056		3291171	1.96			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.433	7.376	0.057	1.000	3839536	1.57			R
563.0 > 268.9	7.433	7.376	0.057	1.000	511174		7.51(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.621	7.555	0.067		6404522	1.96			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.612	7.555	0.057	0.999	5575907	1.61			
613.0 > 168.9	7.621	7.555	0.066	1.000	753535		7.40(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.633	7.576	0.057		4546222	1.96			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.634	7.577	0.057	1.000	4994712	1.98			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.772	7.715	0.057	1.020	4723022	1.49			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.904	7.857	0.047	1.037	3097863	1.60			
712.9 > 169.0	7.904	7.857	0.047	1.037	446603		6.94(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Report Date: 11-Jul-2016 11:14:59 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08010.d

Injection Date: 08-Jul-2016 13:25:52 Instrument ID: LC_LCMS5

Lims ID: 280-85171-A-2-B MS

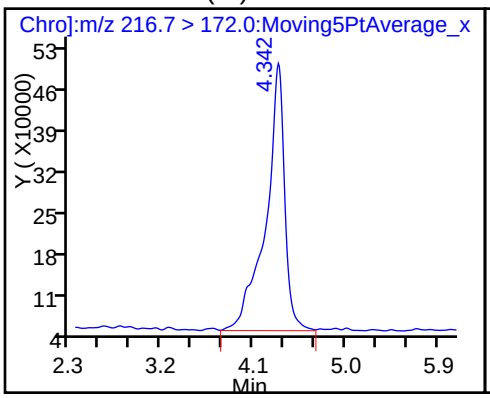
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 5

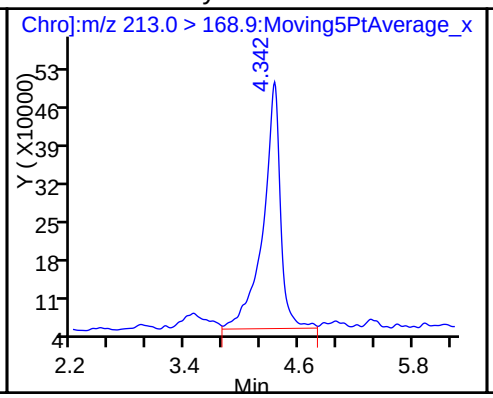
Injection Vol: 25.0 ul Dil. Factor: 5.0000

Method: 8321_PFC Limit Group: LC - PFC

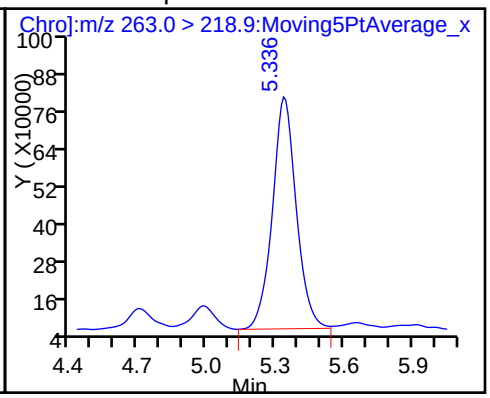
* 1 13C4 PFBA (IS)



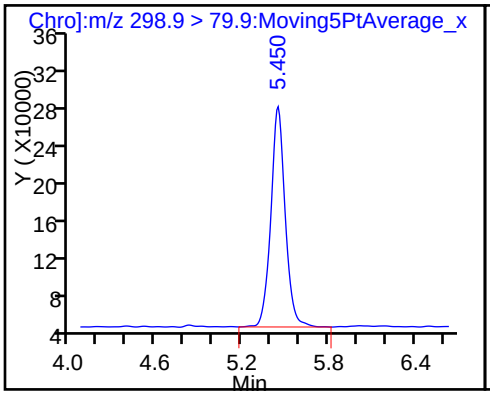
2 Perfluorobutyric acid



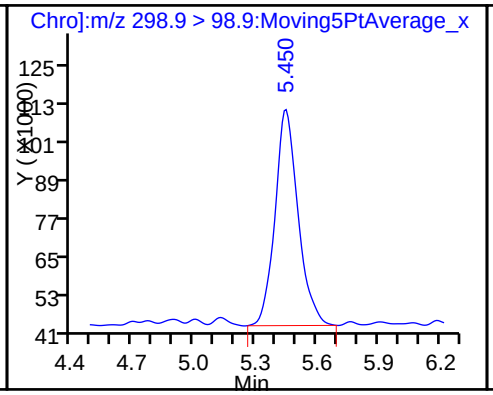
3 Perfluoropentanoic acid



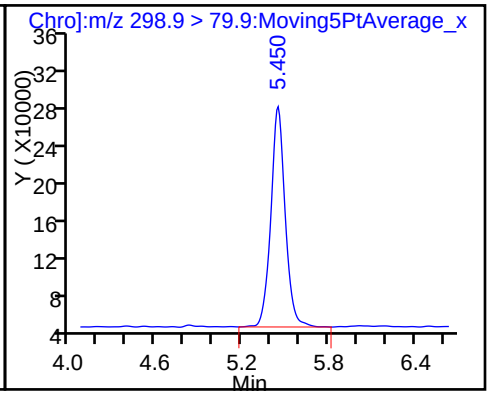
4 Perfluorobutane Sulfonate



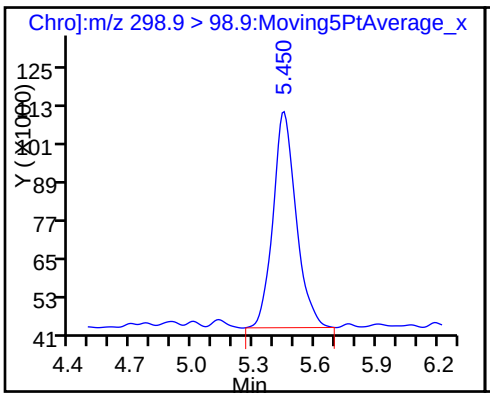
4 Perfluorobutane Sulfonate



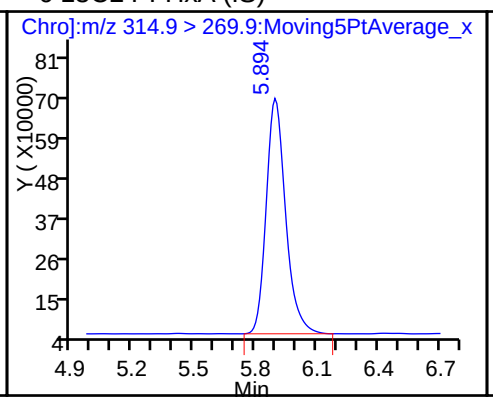
5 Perfluorobutanesulfonic acid



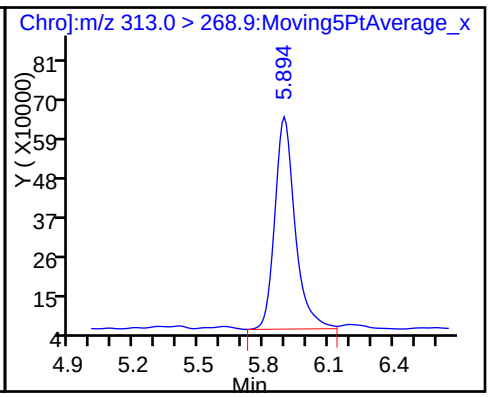
5 Perfluorobutanesulfonic acid



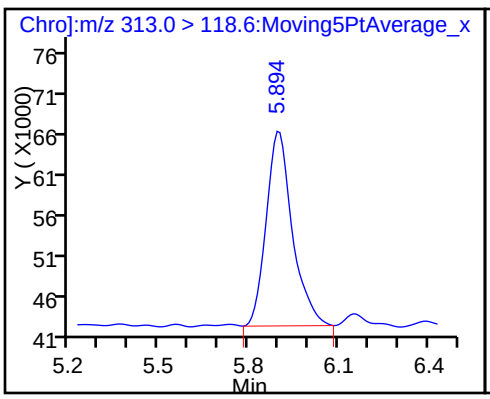
* 6 13C2 PFHxA (IS)



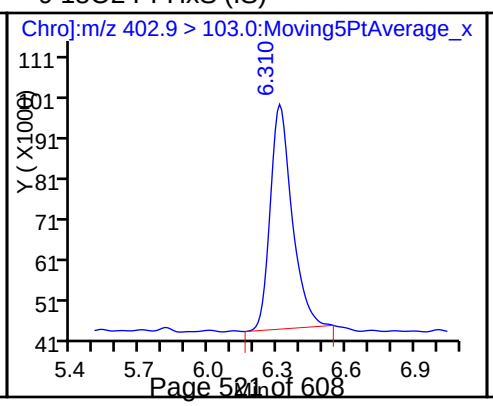
7 Perfluorohexanoic acid



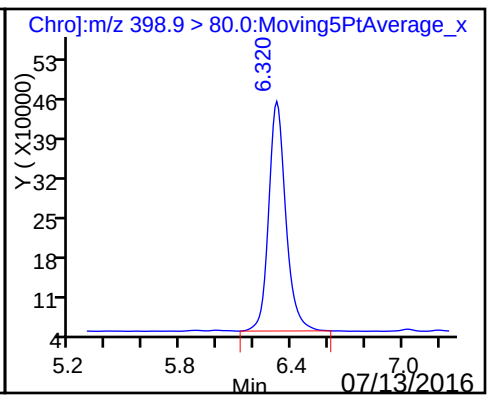
7 Perfluorohexanoic acid



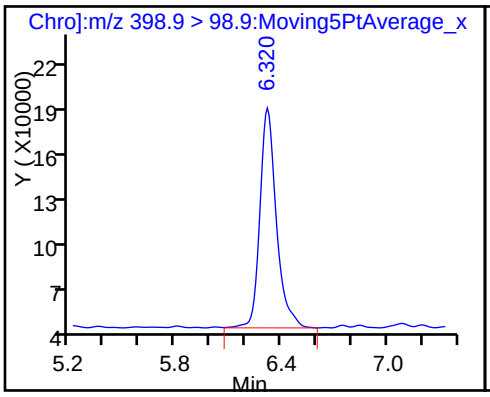
* 9 18O2 PFHxS (IS)



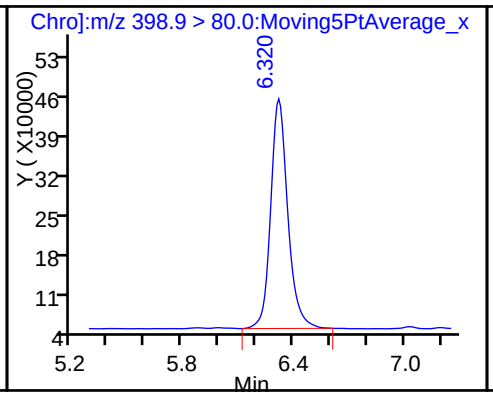
11 Perfluorohexanesulfonic acid



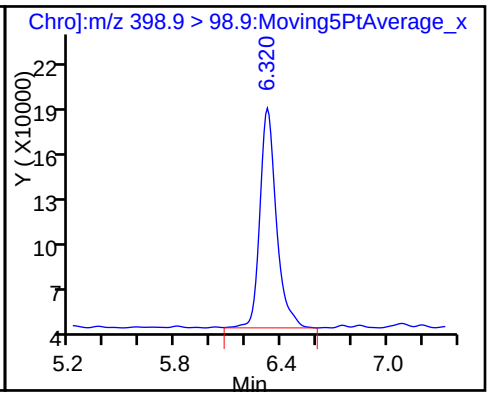
11 Perfluorohexanesulfonic acid



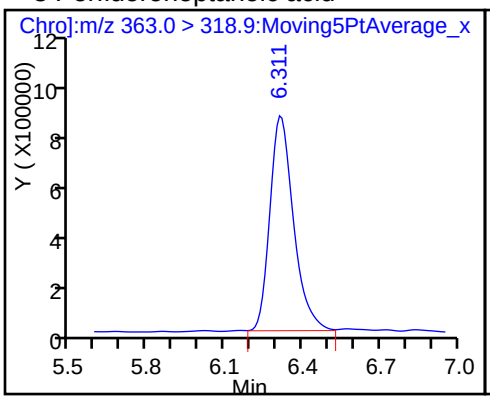
10 Perfluorohexane Sulfonate



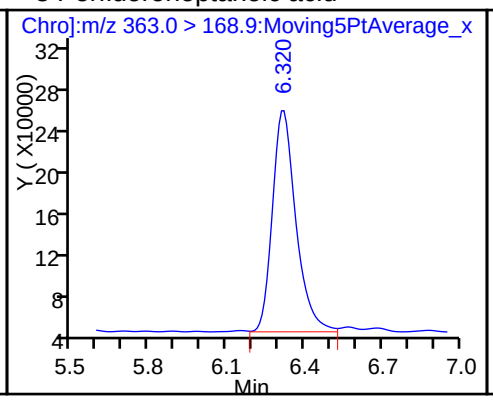
10 Perfluorohexane Sulfonate



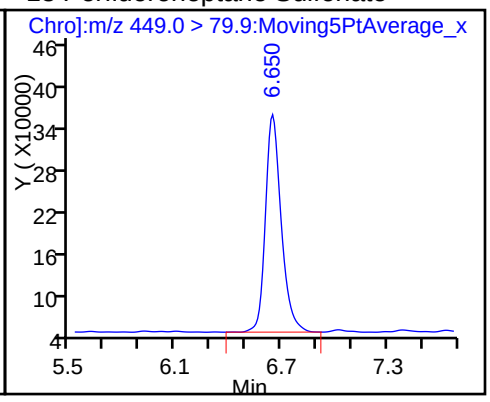
8 Perfluoroheptanoic acid



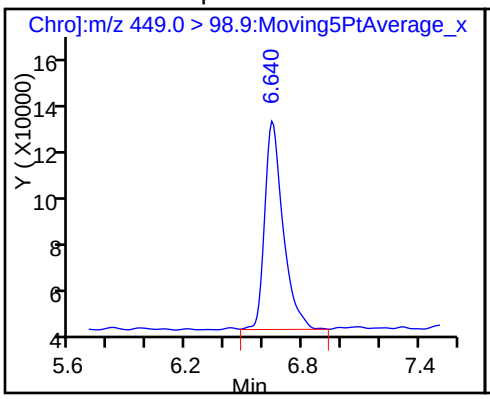
8 Perfluoroheptanoic acid



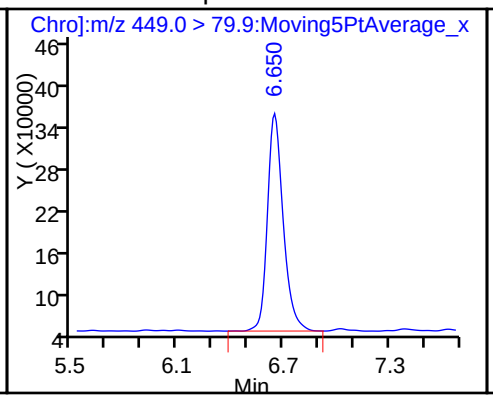
13 Perfluoroheptane Sulfonate



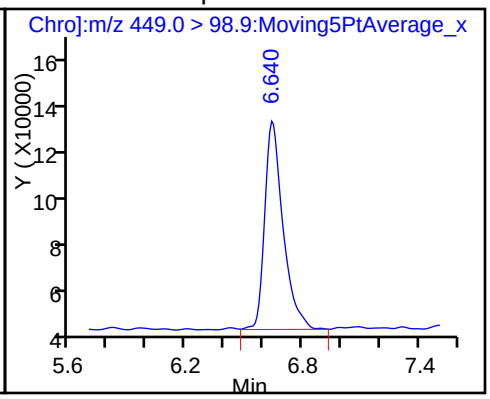
13 Perfluoroheptane Sulfonate



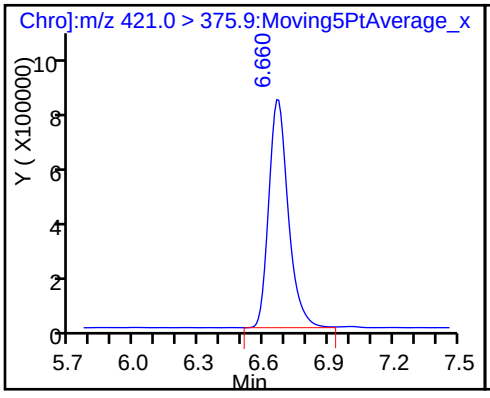
12 Perfluoroheptanesulfonic Acid



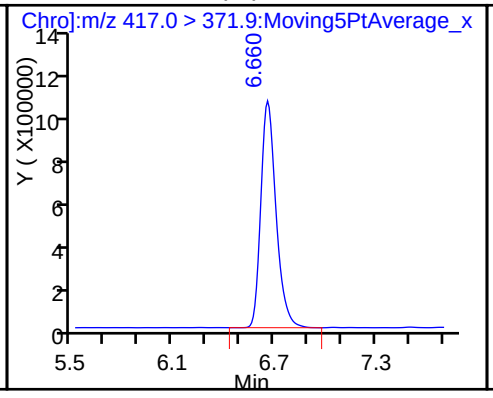
12 Perfluoroheptanesulfonic Acid



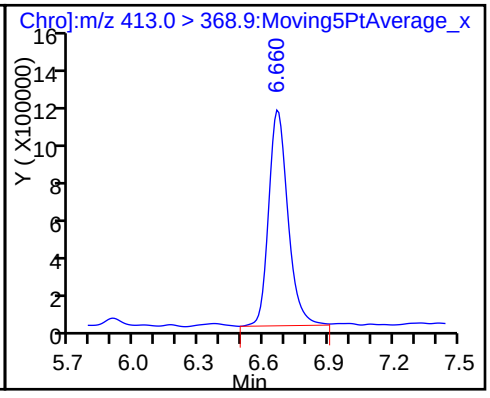
$ 14 13C8 PFOA



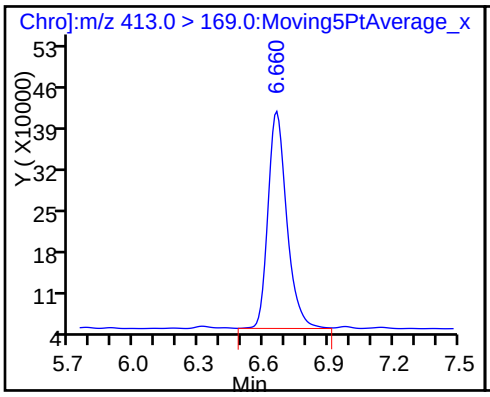
* 15 13C4 PFOA (IS)



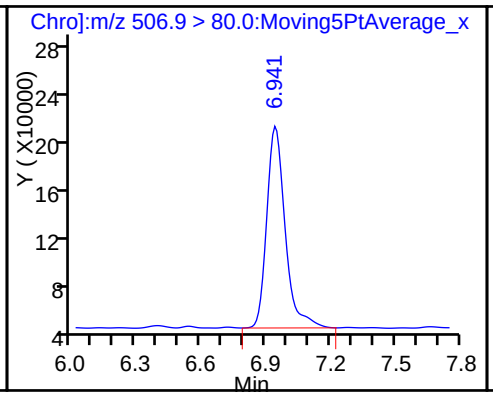
16 Perfluorooctanoic acid



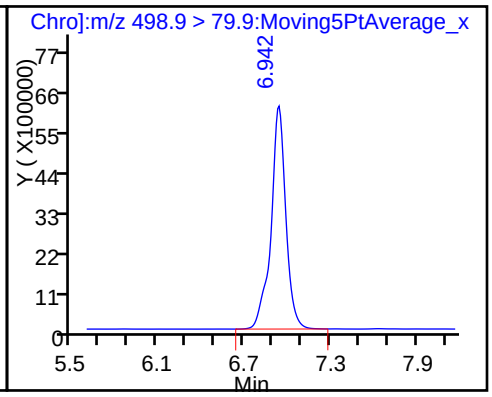
16 Perfluorooctanoic acid



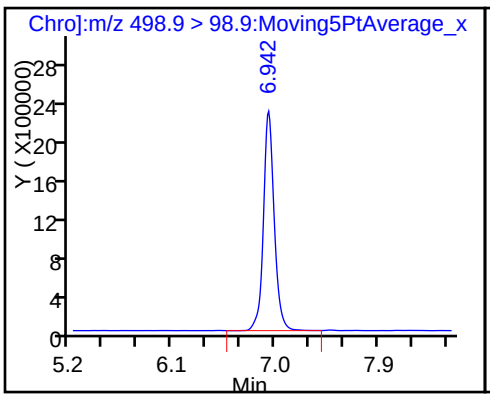
$ 18 13C8 PFOS



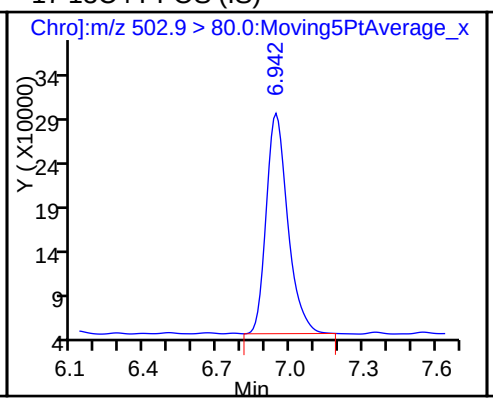
19 Perfluorooctane sulfonic acid



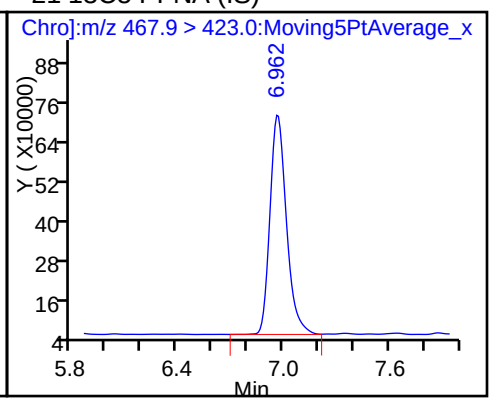
19 Perfluorooctane sulfonic acid



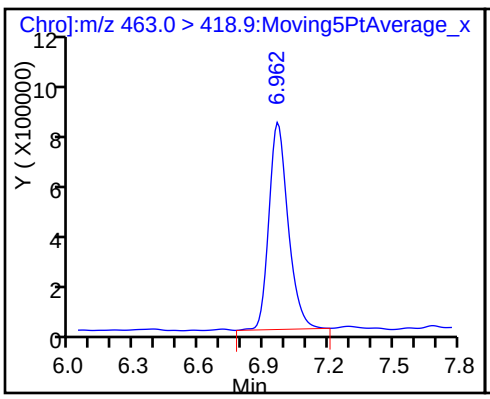
* 17 13C4 PFOS (IS)



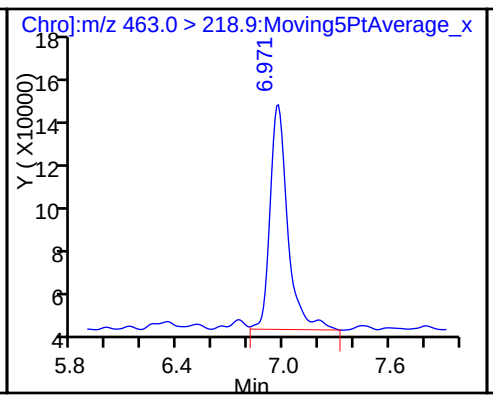
* 21 13C5 PFNA (IS)



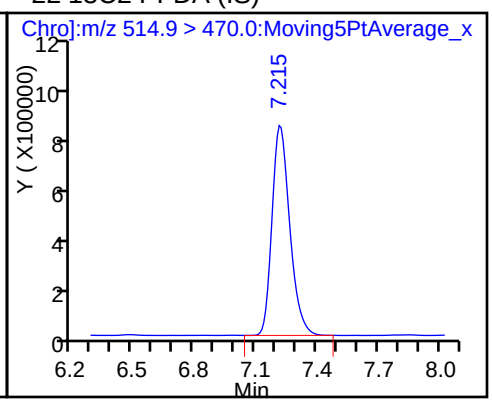
20 Perfluorononanoic acid



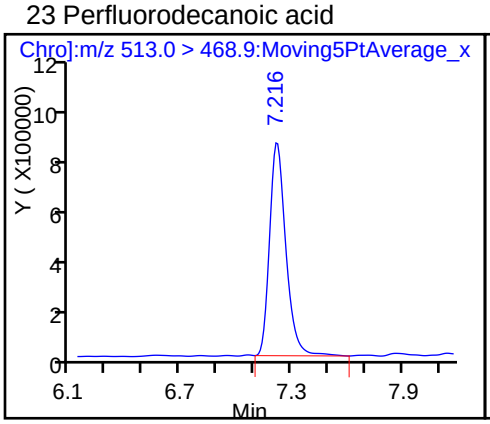
20 Perfluorononanoic acid



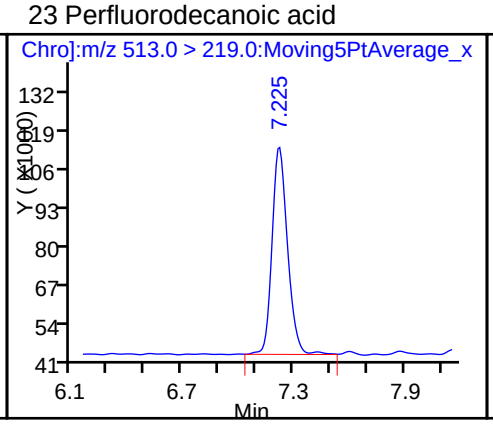
* 22 13C2 PFDA (IS)



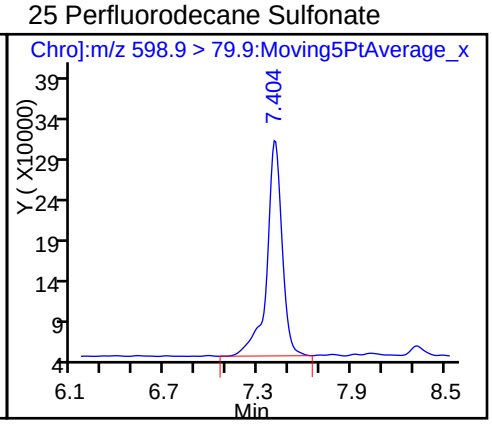
23 Perfluorodecanoic acid



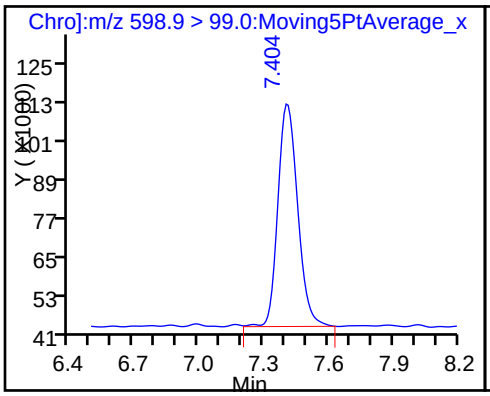
23 Perfluorodecanoic acid



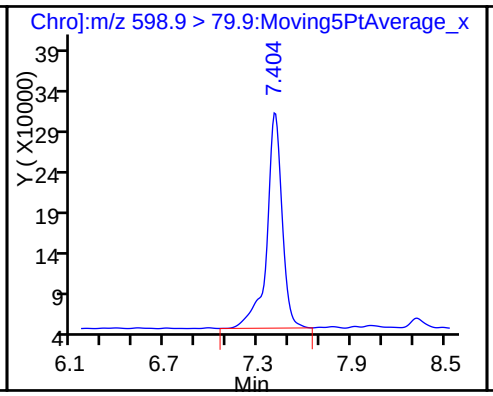
25 Perfluorodecane Sulfonate



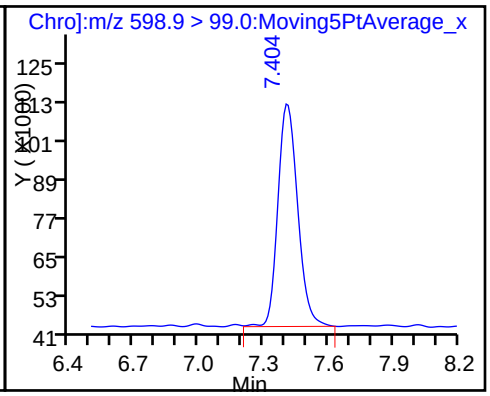
25 Perfluorodecane Sulfonate



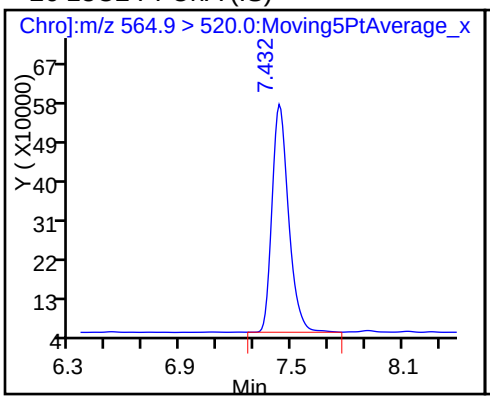
24 Perfluorodecane Sulfonic acid



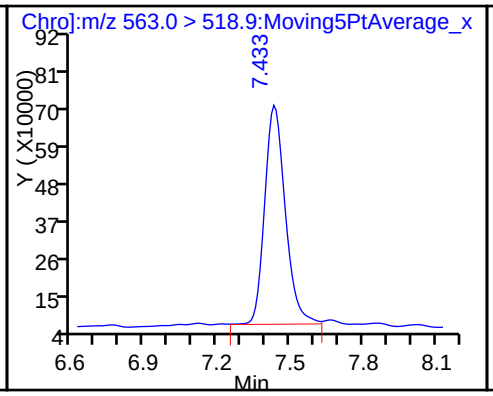
24 Perfluorodecane Sulfonic acid



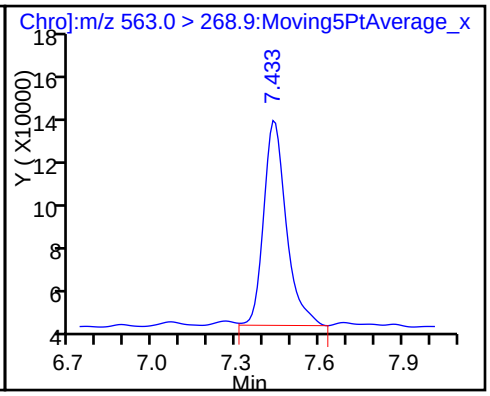
* 26 13C2 PFUnA (IS)



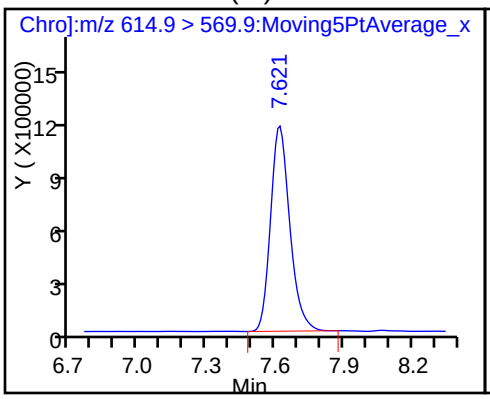
27 Perfluoroundecanoic acid



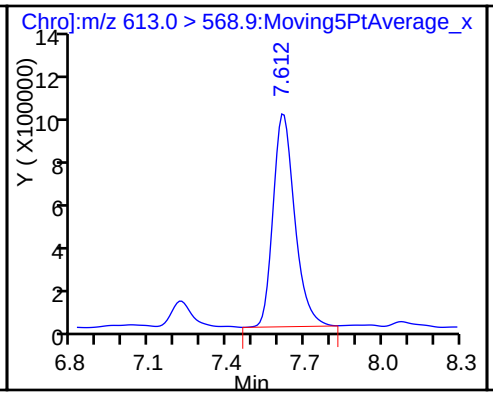
27 Perfluoroundecanoic acid



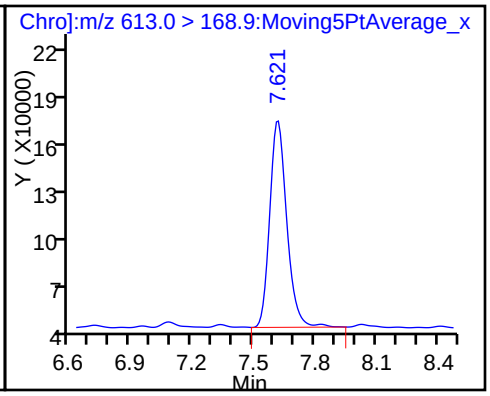
* 28 13C2 PFDoA (IS)



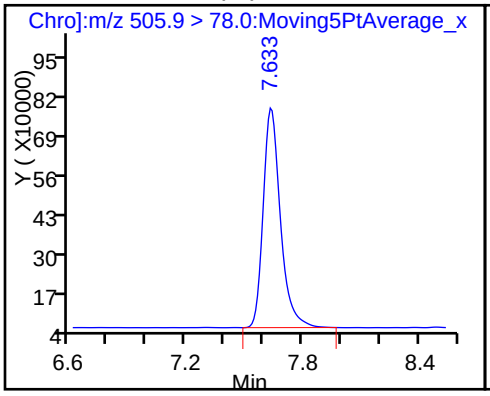
29 Perfluorododecanoic acid



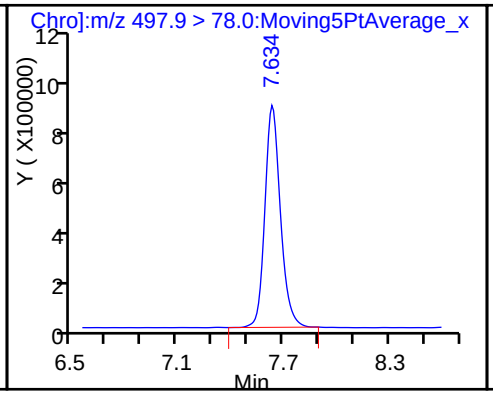
29 Perfluorododecanoic acid



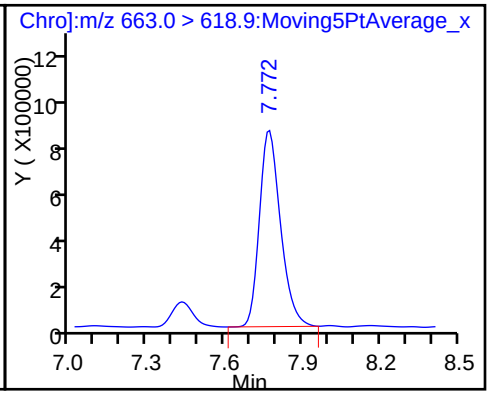
* 31 13C8 FOSA (IS)



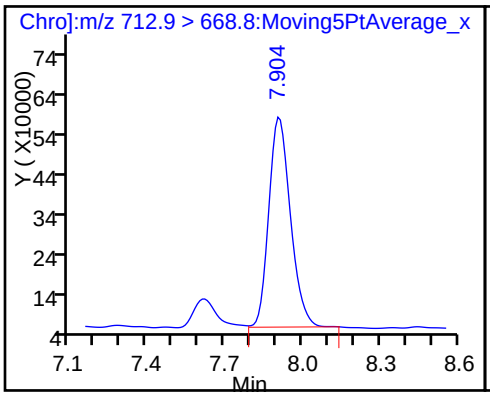
32 Perfluorooctane Sulfonamide



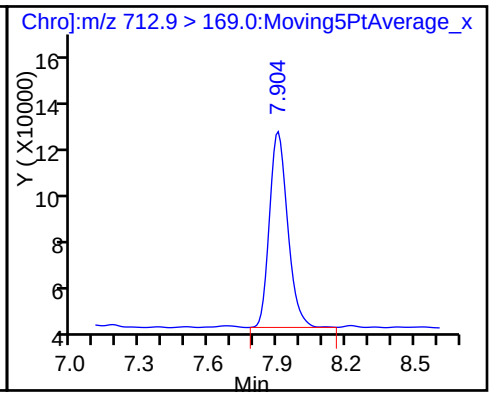
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB003-12.0 MS | Lab Sample ID: 280-85171-23 MS

Matrix: Solid | Lab File ID: PC516G08026.d

Analysis Method: DV-LC-0012 | Date Collected: 06/30/2016 14:50

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.40(g) | Date Analyzed: 07/08/2016 16:42

Con. Extract Vol.: 20.4(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 7.9 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 333083 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	15.31		0.85	0.15
375-85-9	Perfluoroheptanoic acid (PFHpA)	19.62		0.85	0.13
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	17.83		0.85	0.30
375-95-1	Perfluorononanoic acid (PFNA)	17.81		0.85	0.23
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	17.70		0.85	0.15
335-67-1	Perfluorooctanoic acid (PFOA)	18.81		0.85	0.24

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	106		57-153
STL01054	13C8 PFOS	108		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08026.d
Lims ID: 280-85171-A-23-B MS
Client ID: SB003-12.0
Sample Type: MS
Inject. Date: 08-Jul-2016 16:42:44 ALS Bottle#: 0 Worklist Smp#: 21
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85171-A-23-B MS, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 11-Jul-2016 11:13:57 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK031

First Level Reviewer: fiedlerh Date: 11-Jul-2016 11:00:57

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.276	4.219	0.057		25539965	9.80			
2 Perfluorobutyric acid									
213.0 > 168.9	4.276	4.219	0.057	1.000	22980186	8.22			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.280	5.223	0.057	0.902	19540675	8.59			
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.393	5.336	0.057	0.857	9560635	7.19			
298.9 > 98.9	5.393	5.336	0.057	0.857	2923746		3.27(1.80-3.35)		
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.393	5.336	0.057	0.857	9560635	7.19			
298.9 > 98.9	5.393	5.336	0.057	0.857	2923746		3.27(2.57-2.57)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.856	5.809	0.047		18943704	9.80			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.857	5.809	0.048	1.000	15506549	8.48			
313.0 > 118.6	5.847	5.809	0.038	0.998	356786		43.46(34.05-63.23)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.282	6.235	0.047	0.947	23847060	9.21			
363.0 > 168.9	6.282	6.235	0.047	0.947	6673885		3.57(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.291	6.244	0.047		2360873	9.27			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.282	6.244	0.038	0.999	8260031	8.37			R
398.9 > 98.9	6.291	6.244	0.047	1.000	2773478		2.98(1.30-2.41)		
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.282	6.244	0.038	0.999	8260031	8.37			
398.9 > 98.9	6.291	6.244	0.047	1.000	2773478		2.98(1.85-1.85)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.621	6.583	0.038	0.959	9836056	8.87			
449.0 > 98.9	6.621	6.583	0.038	0.959	2882445		3.41(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.621	6.583	0.038	0.959	9836056	8.87			
449.0 > 98.9	6.621	6.583	0.038	0.959	2882445		3.41(0.00-0.00)		
16 Perfluorooctanoic acid									
413.0 > 368.9	6.632	6.584	0.048	1.000	27405098	8.83			
413.0 > 169.0	6.632	6.584	0.048	1.000	8639731		3.17(2.86-5.31)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.631	6.593	0.038	1.000	24510582	10.2			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.631	6.593	0.038		29170742	9.80			
$ 18 13C8 PFOS									
506.9 > 80.0	6.903	6.865	0.038	1.000	5496493	9.82			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.904	6.866	0.038		8579930	9.37			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.904	6.866	0.038	1.000	8927723	8.31			R
498.9 > 98.9	6.904	6.866	0.038	1.000	3235951		2.76(1.31-2.43)		
20 Perfluorononanoic acid									
463.0 > 418.9	6.924	6.886	0.038	1.000	22135352	8.36			
463.0 > 218.9	6.924	6.886	0.038	1.000	3397570		6.52(5.59-10.38)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.924	6.895	0.029		23120387	9.80			
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.177	7.149	0.028		25448091	9.80			
23 Perfluorodecanoic acid									
513.0 > 468.9	7.178	7.149	0.029	1.000	21901572	8.37			
513.0 > 219.0	7.178	7.149	0.029	1.000	1989977		11.01(10.49-19.48)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.366	7.337	0.029	1.067	8895962	7.85			
598.9 > 99.0	7.366	7.337	0.029	1.067	2678905		3.32(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.366	7.337	0.029	1.067	8895962	7.85			
598.9 > 99.0	7.366	7.337	0.029	1.067	2678905		3.32(2.84-2.84)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.395	7.366	0.029		15370710	9.80			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.395	7.366	0.029	1.000	18812381	8.46			R
563.0 > 268.9	7.395	7.366	0.029	1.000	2476155		7.60(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.573	7.555	0.019		31965663	9.80			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.574	7.555	0.019	1.000	29309512	8.74			
613.0 > 168.9	7.574	7.555	0.019	1.000	3473515		8.44(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.595	7.614	-0.019		25583383	9.80			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.596	7.615	-0.019	1.000	24843893	8.77			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.734	7.725	0.009	1.021	26680313	8.79			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.866	7.866	0.0	1.039	19599686	10.2			
712.9 > 169.0	7.866	7.866	0.0	1.039	2895912		6.77(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Report Date: 11-Jul-2016 11:14:17 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08026.d

Injection Date: 08-Jul-2016 16:42:44 Instrument ID: LC_LCMS5

Lims ID: 280-85171-A-23-B MS

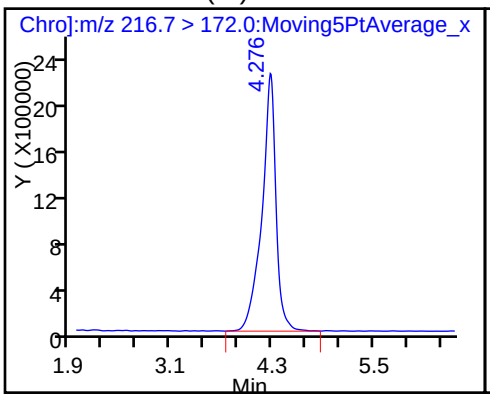
Client ID: SB003-12.0

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 21

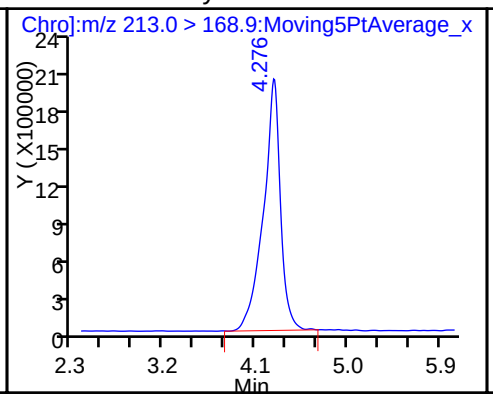
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

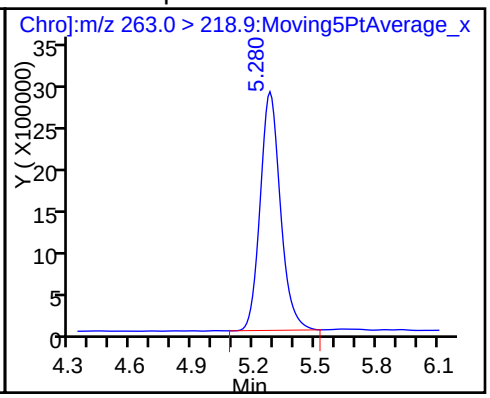
* 1 13C4 PFBA (IS)



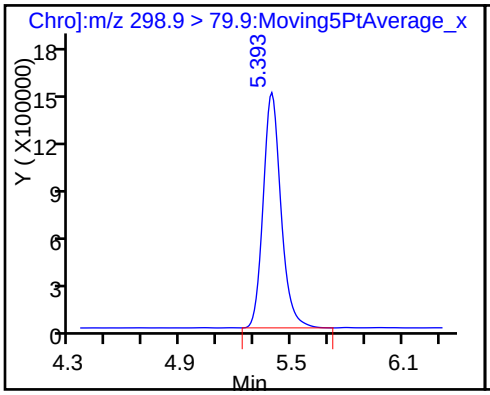
2 Perfluorobutyric acid



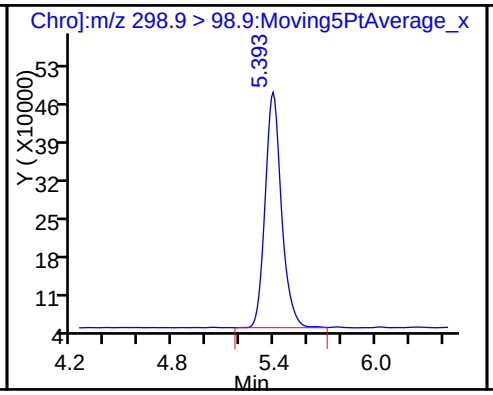
3 Perfluoropentanoic acid



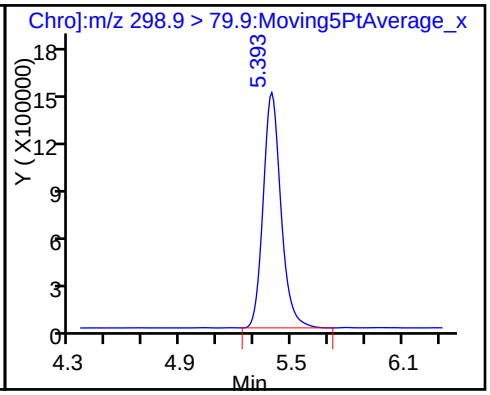
4 Perfluorobutane Sulfonate



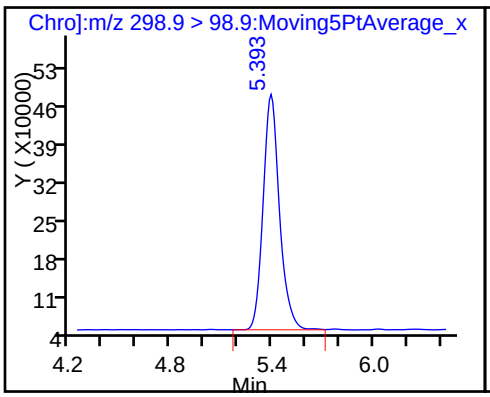
4 Perfluorobutane Sulfonate



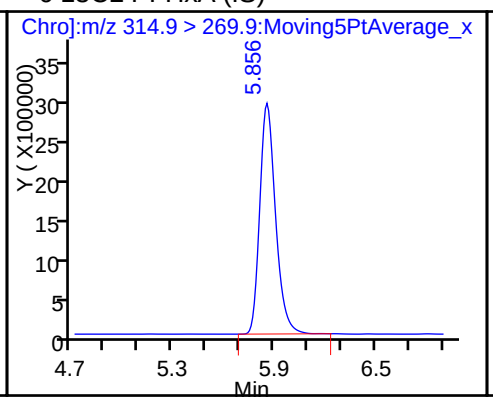
5 Perfluorobutanesulfonic acid



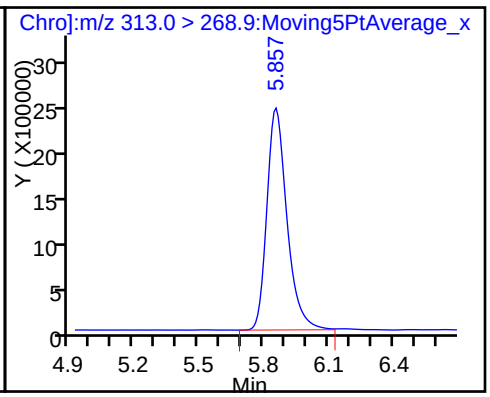
5 Perfluorobutanesulfonic acid



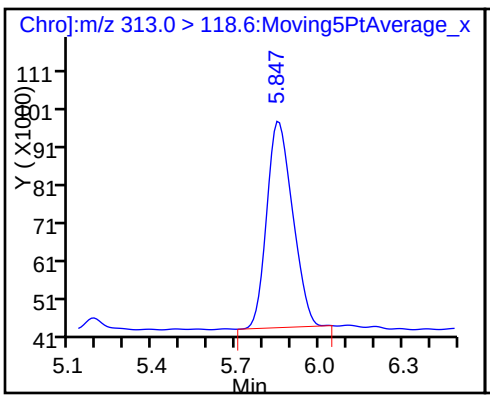
* 6 13C2 PFHxA (IS)



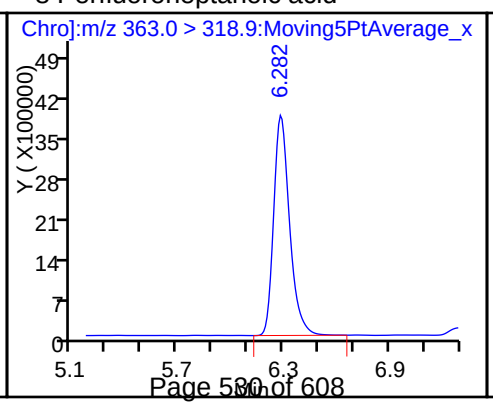
7 Perfluorohexanoic acid



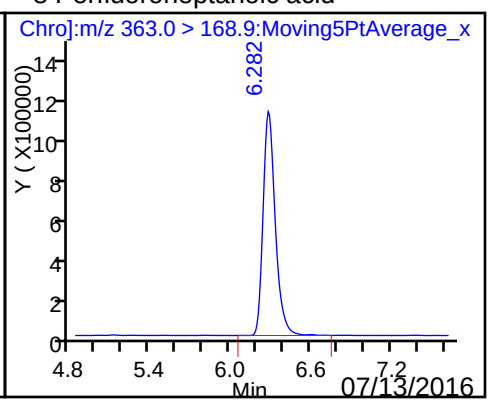
7 Perfluorohexanoic acid



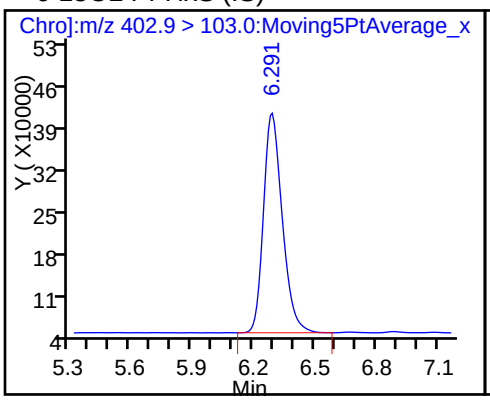
8 Perfluoroheptanoic acid



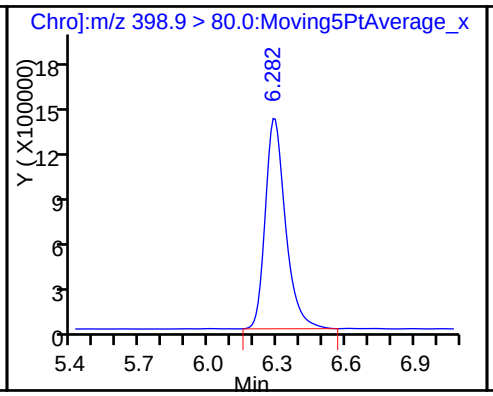
8 Perfluoroheptanoic acid



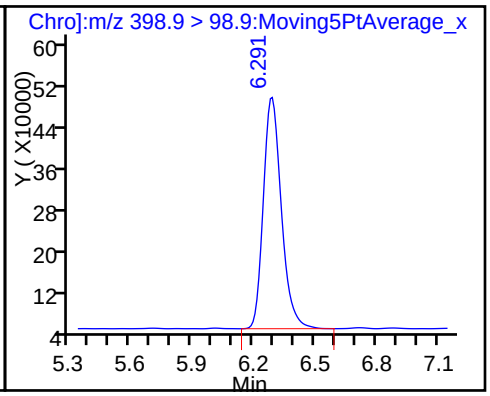
* 9 18O2 PFHxS (IS)



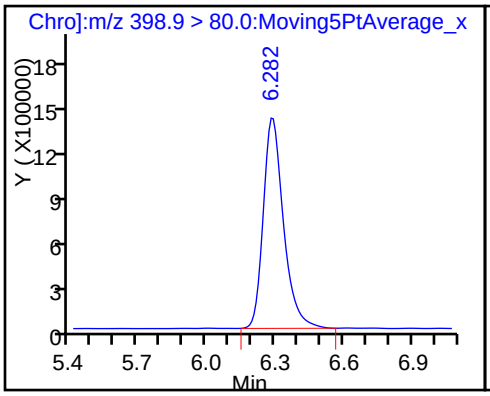
10 Perfluorohexane Sulfonate



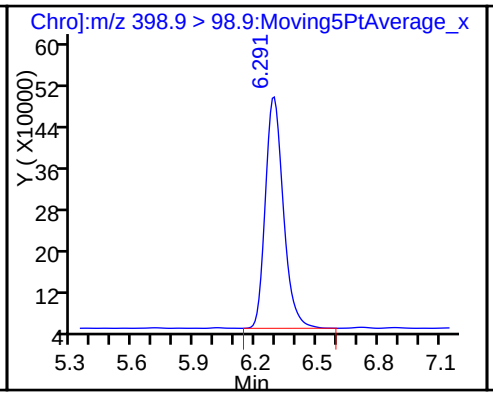
10 Perfluorohexane Sulfonate



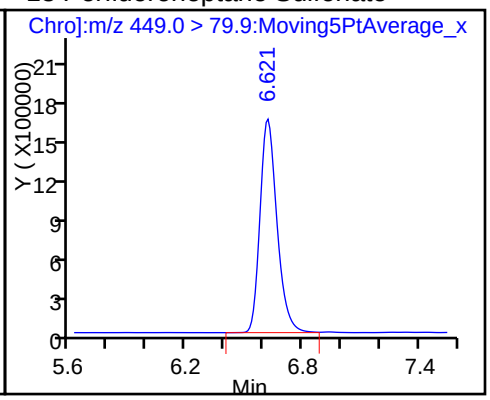
11 Perfluorohexanesulfonic acid



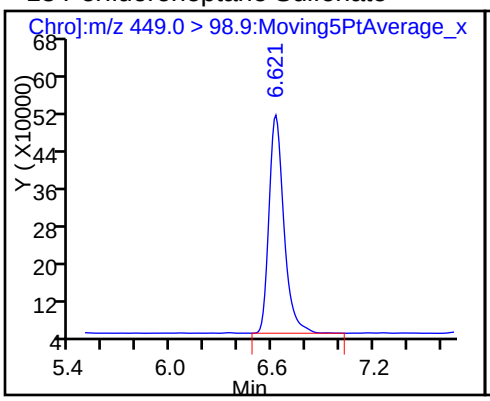
11 Perfluorohexanesulfonic acid



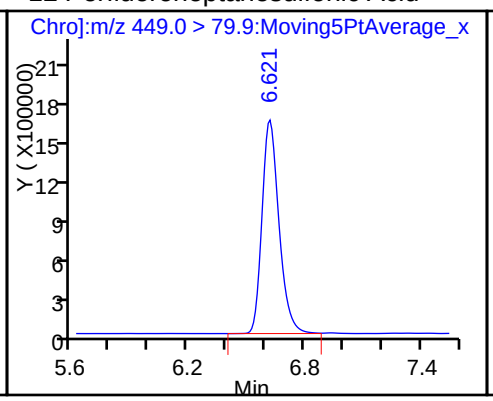
13 Perfluoroheptane Sulfonate



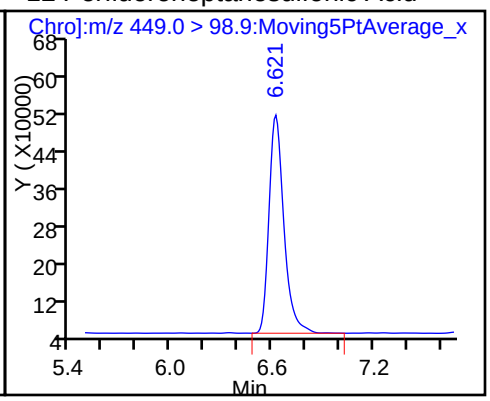
13 Perfluoroheptane Sulfonate



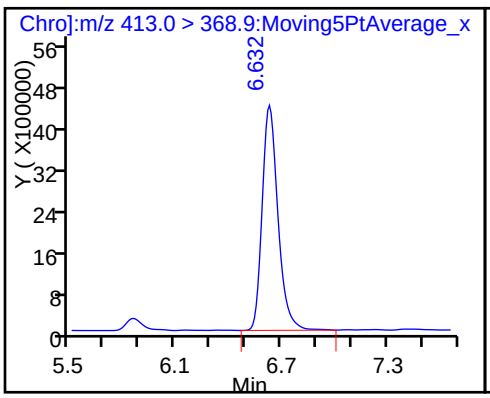
12 Perfluoroheptanesulfonic Acid



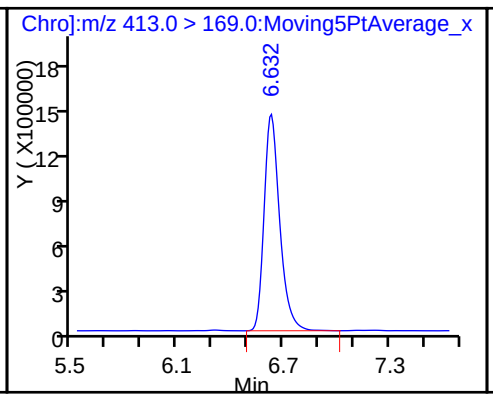
12 Perfluoroheptanesulfonic Acid



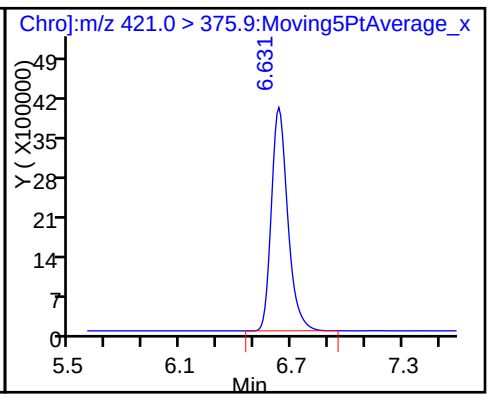
16 Perfluorooctanoic acid



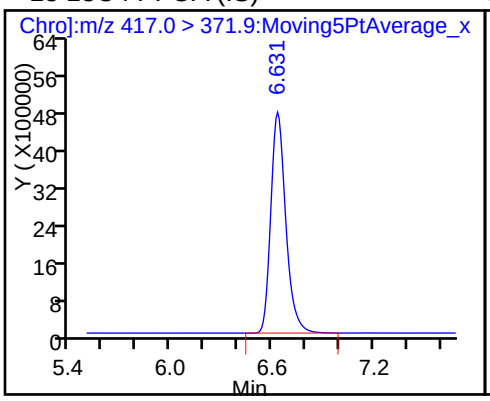
16 Perfluorooctanoic acid



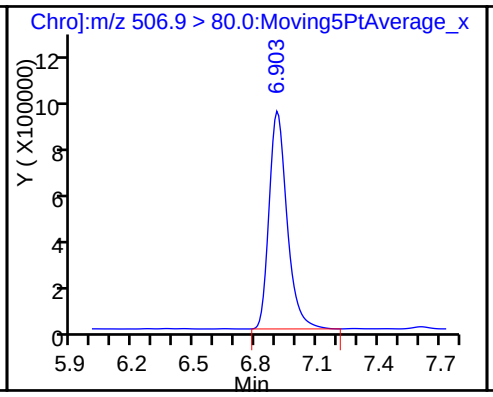
$ 14 13C8 PFOA



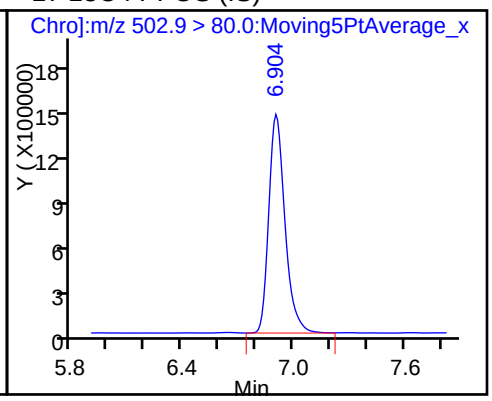
* 15 13C4 PFOA (IS)



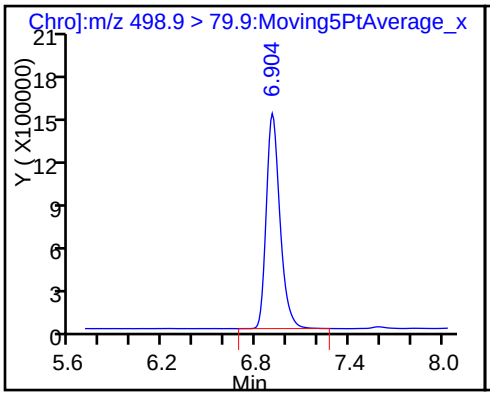
$ 18 13C8 PFOS



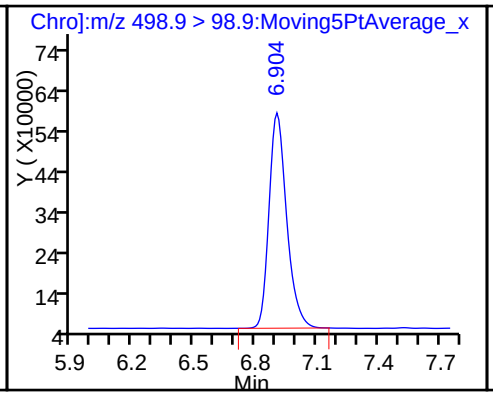
* 17 13C4 PFOS (IS)



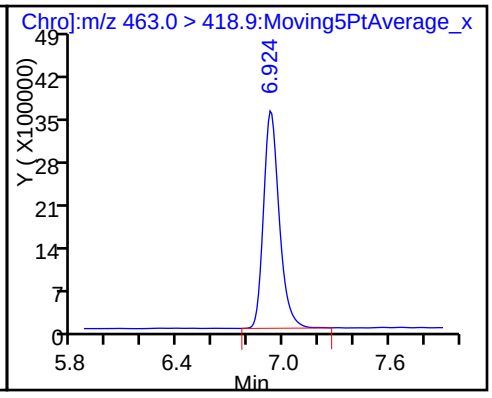
19 Perfluorooctane sulfonic acid



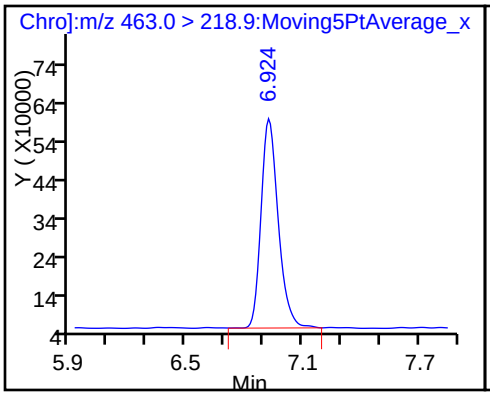
19 Perfluorooctane sulfonic acid



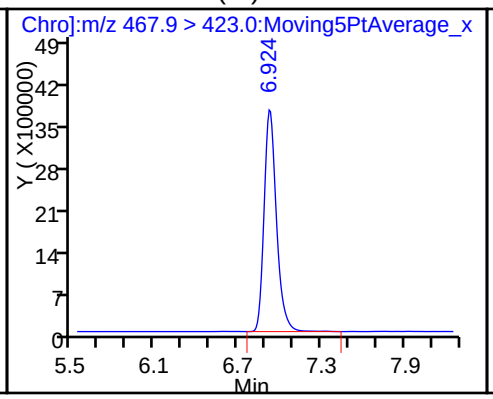
20 Perfluorononanoic acid



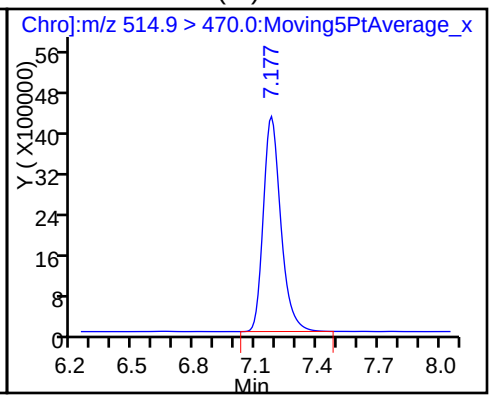
20 Perfluorononanoic acid



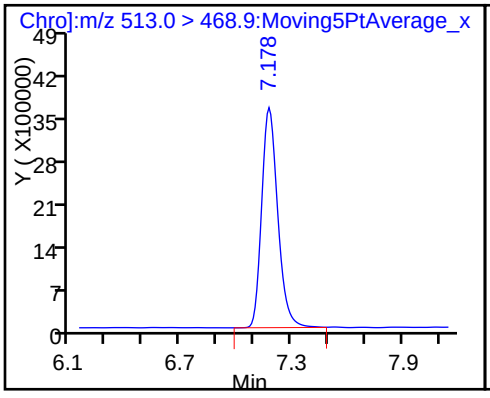
* 21 13C5 PFNA (IS)



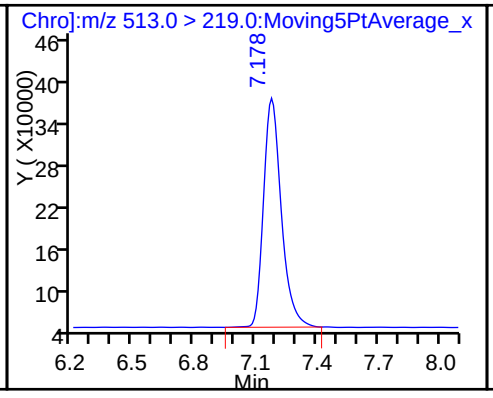
* 22 13C2 PFDA (IS)



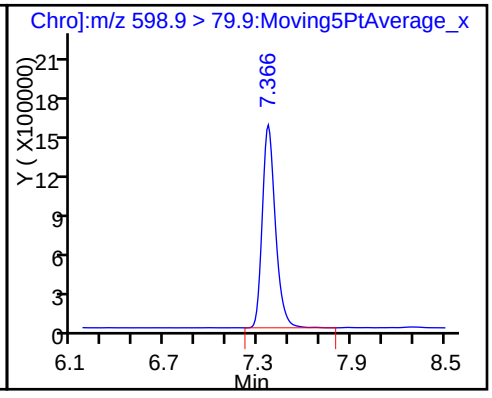
23 Perfluorodecanoic acid



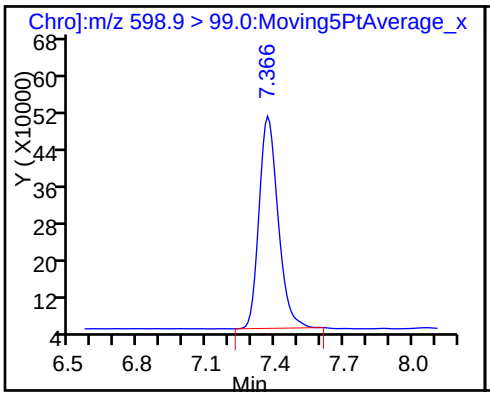
23 Perfluorodecanoic acid



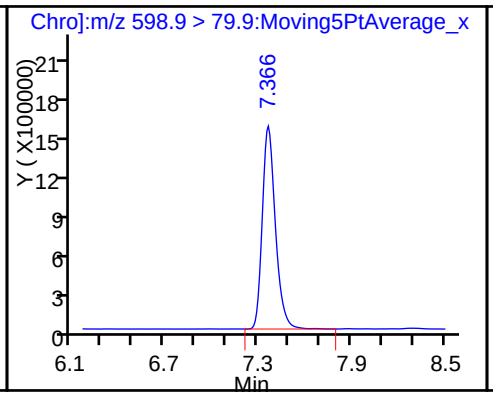
25 Perfluorodecane Sulfonate



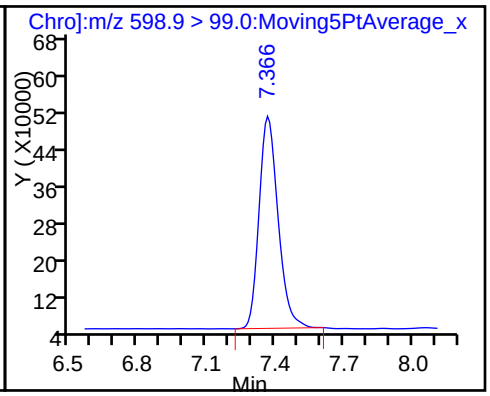
25 Perfluorodecane Sulfonate



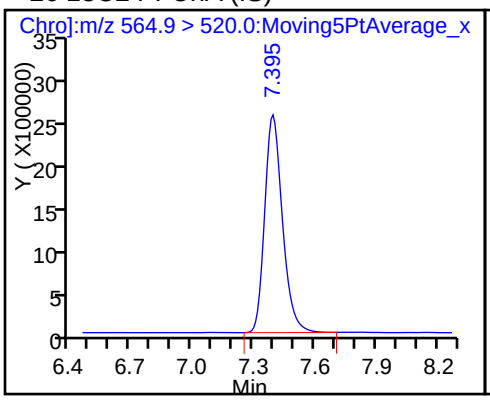
24 Perfluorodecane Sulfonic acid



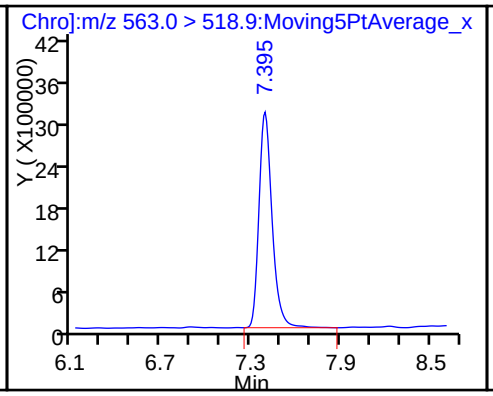
24 Perfluorodecane Sulfonic acid



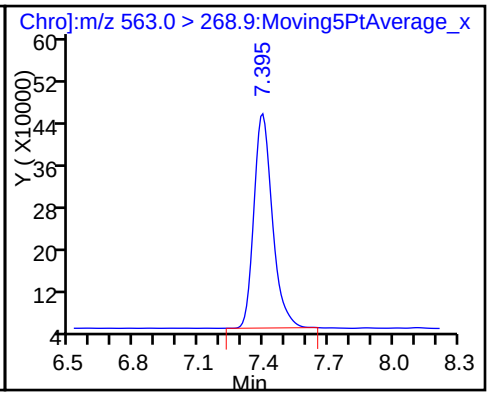
* 26 13C2 PFUnA (IS)



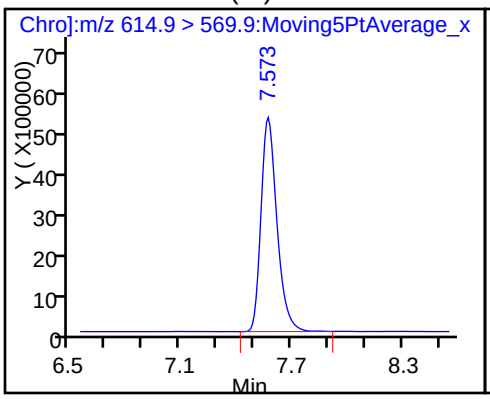
27 Perfluoroundecanoic acid



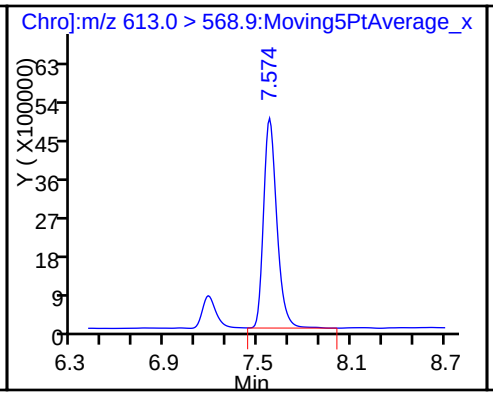
27 Perfluoroundecanoic acid



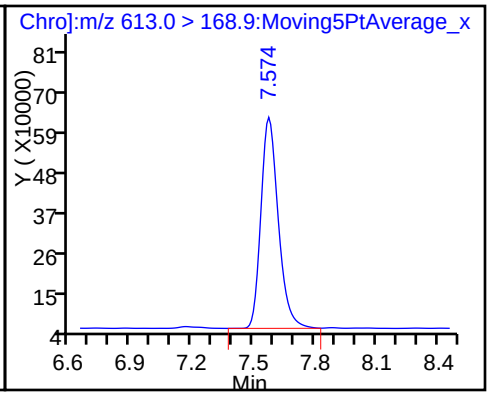
* 28 13C2 PFDoA (IS)



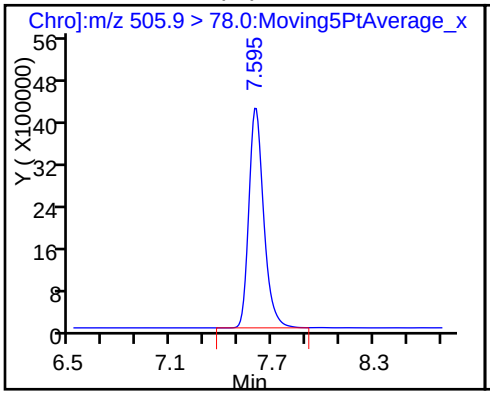
29 Perfluorododecanoic acid



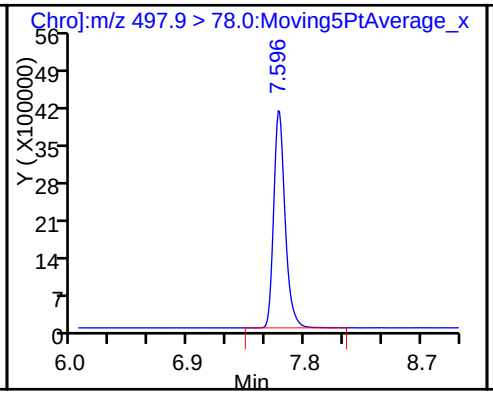
29 Perfluorododecanoic acid



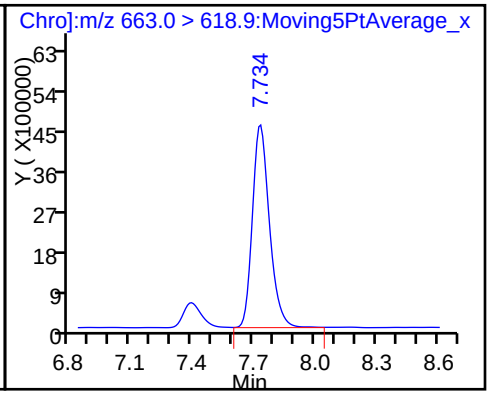
* 31 13C8 FOSA (IS)



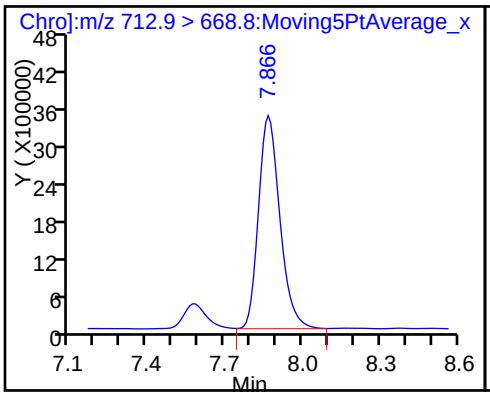
32 Perfluorooctane Sulfonamide



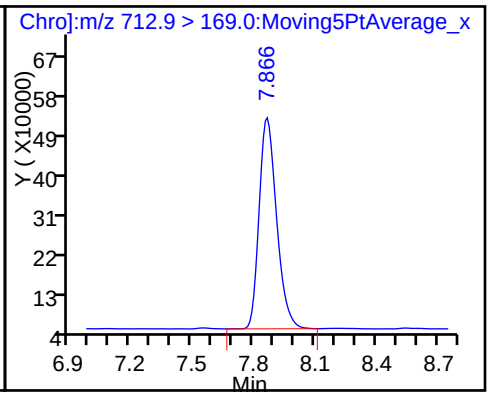
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: | Lab Sample ID: 280-85194-A-1-A MS

Matrix: Water | Lab File ID: PC516G07064.d

Analysis Method: DV-LC-0012 | Date Collected: 06/30/2016 08:30

Extraction Method: 3535 | Date Extracted: 07/05/2016 12:12

Sample wt/vol: 284.5(mL) | Date Analyzed: 07/07/2016 19:10

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 332793 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.438		0.018	0.0072
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.617		0.026	0.012
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	1.345		0.026	0.0061
375-95-1	Perfluorononanoic acid (PFNA)	0.240		0.035	0.015
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.499		0.026	0.012
335-67-1	Perfluorooctanoic acid (PFOA)	1.441		0.018	0.0086

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	111		60-155
STL01054	13C8 PFOS	149	X	45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07064.d
Lims ID: 280-85194-A-1-A MS
Client ID:
Sample Type: MS
Inject. Date: 07-Jul-2016 19:10:52 ALS Bottle#: 0 Worklist Smp#: 29
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85194-A-1-A MS, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 08-Jul-2016 09:16:52 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK002

First Level Reviewer: fiedlerh Date: 08-Jul-2016 08:23:40

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0		4.522				0			
2 Perfluorobutyric acid									
213.0 > 168.9		4.522				ND			
3 Perfluoropentanoic acid									
263.0 > 218.9		5.488				ND			
4 Perfluorobutane Sulfonate									R
298.9 > 79.9	5.507	5.592	-0.085	0.865	25419115	24.9			R
298.9 > 98.9	5.507	5.592	-0.085	0.865	6852301		3.71(1.80-3.35)		
5 Perfluorobutanesulfonic acid									M
298.9 > 79.9	5.507	5.592	-0.085	0.865	22614489	22.2			M
298.9 > 98.9	5.507	5.592	-0.085	0.865	6852301		3.30(2.57-2.57)		
* 6 13C2 PFHxA (IS)									s
314.9 > 269.9	5.951	6.027	-0.076		2134569	10.0			
7 Perfluorohexanoic acid									M
313.0 > 268.9	5.951	6.027	-0.076	1.000	15623767	77.5			M
313.0 > 118.6	5.961	6.027	-0.066	1.002	392866		39.77(34.05-63.23)		
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.358	6.433	-0.075	0.999	57326808	76.5			
398.9 > 98.9	6.358	6.433	-0.075	0.999	19633320		2.92(1.85-1.85)		
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.358	6.433	-0.075	0.999	57326808	76.5			R
398.9 > 98.9	6.358	6.433	-0.075	0.999	19633320		2.92(1.30-2.41)		
8 Perfluoroheptanoic acid									M
363.0 > 318.9	6.358	6.434	-0.076	0.951	37245830	35.1			M
363.0 > 168.9	6.358	6.434	-0.076	0.951	9409319		3.96(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.367	6.433	-0.066		1845165	9.46			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.678	6.763	-0.085	0.961	9791784	12.0			
449.0 > 98.9	6.678	6.763	-0.085	0.961	2698790		3.63(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.678	6.763	-0.085	0.961	9791784	12.0			
449.0 > 98.9	6.678	6.763	-0.085	0.961	2698790		3.63(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.688	6.773	-0.085	1.000	10988471	11.1			
* 15 13C4 PFOA (IS)									s
417.0 > 371.9	6.688	6.773	-0.085		12232069	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.688	6.774	-0.086	1.000	103833938	82.0			
413.0 > 169.0	6.688	6.774	-0.086	1.000	32971753		3.15(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.951	7.036	-0.085	1.000	5839432	14.2			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.951	7.036	-0.085		6435564	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.942	7.037	-0.095	0.999	66843877	85.3			R
498.9 > 98.9	6.951	7.037	-0.086	1.000	18814581		3.55(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.971	7.056	-0.085		11281112	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.971	7.056	-0.085	1.000	17273309	13.7			
463.0 > 218.9	6.971	7.056	-0.085	1.000	2354652		7.34(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.215	7.301	-0.086		16718403	10.0			
23 Perfluorodecanoic acid									R
513.0 > 468.9	7.216	7.301	-0.085	1.000	17491905	10.4			R
513.0 > 219.0	7.216	7.301	-0.085	1.000	1783653		9.81(10.49-19.48)		
25 Perfluorodecane Sulfonate									R
598.9 > 79.9	7.404	7.479	-0.075	1.065	4917693	5.89			R
598.9 > 99.0	7.394	7.479	-0.085	1.064	1193098		4.12(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.404	7.479	-0.075	1.065	4917693	5.89			
598.9 > 99.0	7.394	7.479	-0.085	1.064	1193098		4.12(2.84-2.84)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.432	7.508	-0.076		8826555	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.433	7.508	-0.075	1.000	11497583	9.19			R
563.0 > 268.9	7.433	7.508	-0.075	1.000	1487788		7.73(3.47-6.45)		
* 28 13C2 PFDoA (IS)									s
614.9 > 569.9	7.611	7.687	-0.076		9537837	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.612	7.687	-0.075	1.000	8248264	8.41			
613.0 > 168.9	7.621	7.687	-0.066	1.001	1136533		7.26(5.96-11.06)		
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.690	7.728	-0.038		633003	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.681	7.729	-0.048	0.999	633476	9.22			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.772	7.848	-0.076	1.021	3454972	3.84			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.904	7.980	-0.076	1.038	1764138	3.13			
712.9 > 169.0	7.904	7.980	-0.076	1.038	291313		6.06(8.28-8.28)		

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

R - Failed Signal Ratio Test

s - Failed ISTD Recovery Test

Review Flags

M - Manually Integrated

Report Date: 08-Jul-2016 09:17:14 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07064.d

Injection Date: 07-Jul-2016 19:10:52 Instrument ID: LC_LCMS5

Lims ID: 280-85194-A-1-A MS

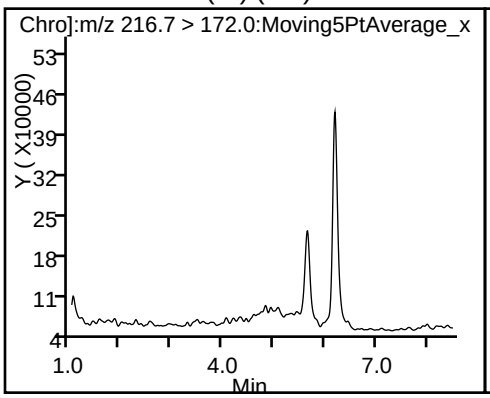
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 29

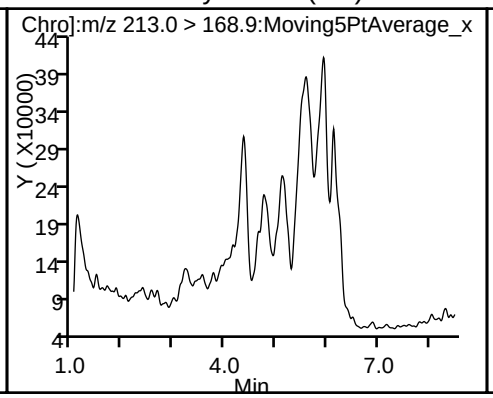
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

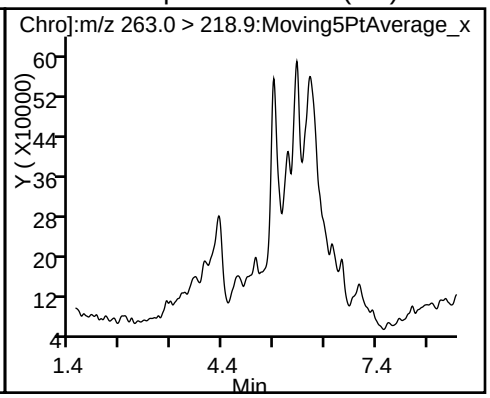
* 1 13C4 PFBA (IS) (ND)



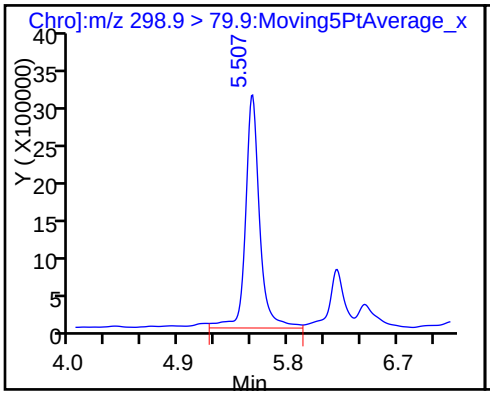
2 Perfluorobutyric acid (ND)



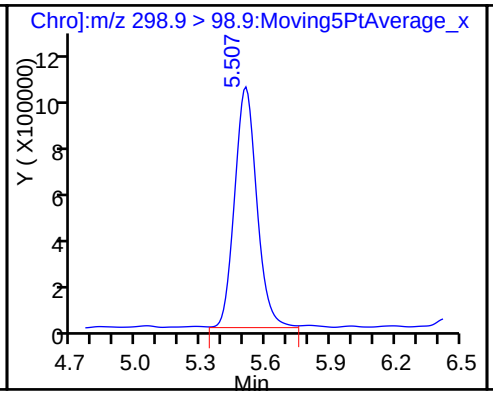
3 Perfluoropentanoic acid (ND)



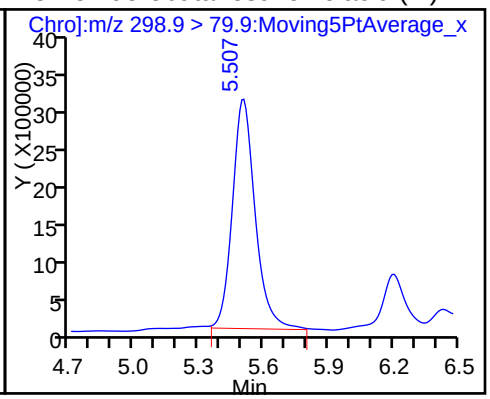
4 Perfluorobutane Sulfonate



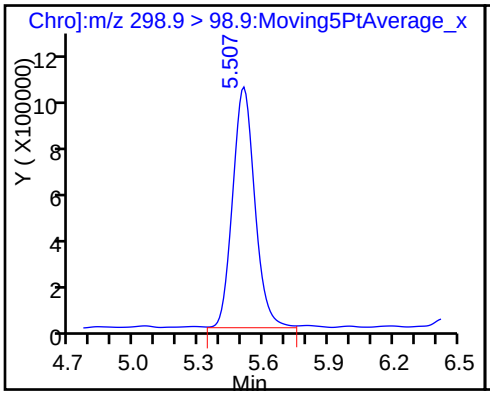
4 Perfluorobutane Sulfonate



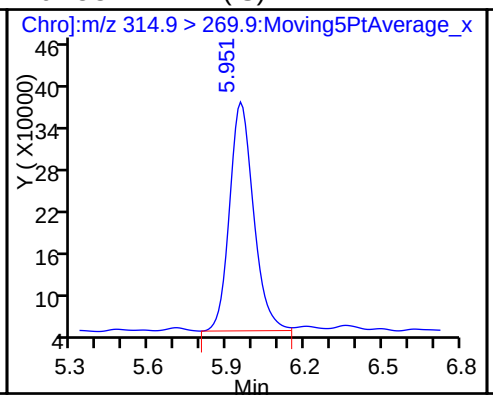
5 Perfluorobutanesulfonic acid (M)



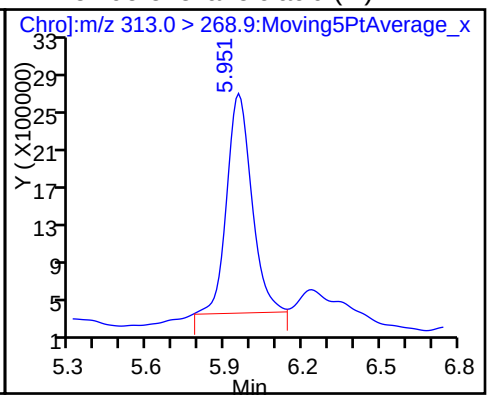
5 Perfluorobutanesulfonic acid



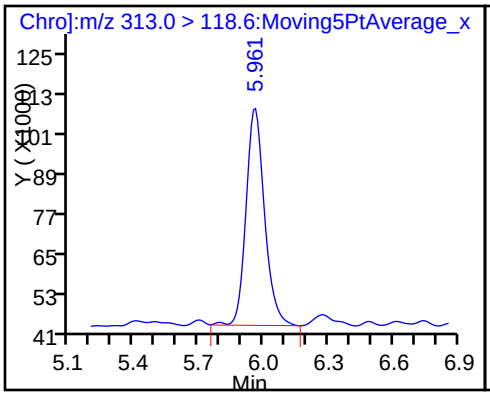
* 6 13C2 PFHxA (IS)



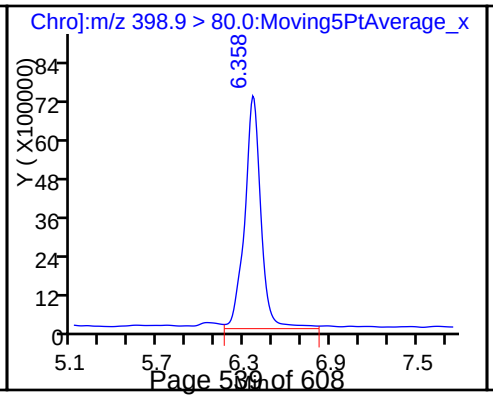
7 Perfluorohexanoic acid (M)



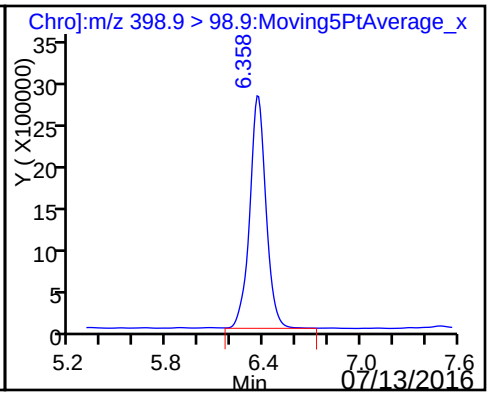
7 Perfluorohexanoic acid



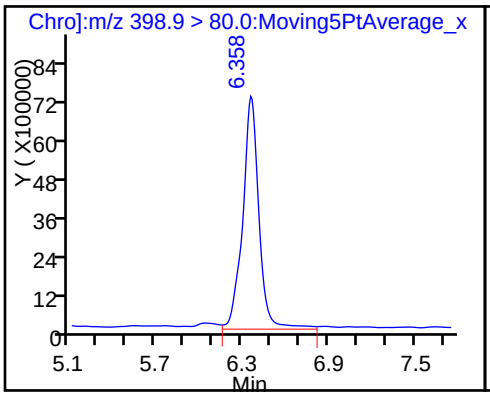
11 Perfluorohexanesulfonic acid



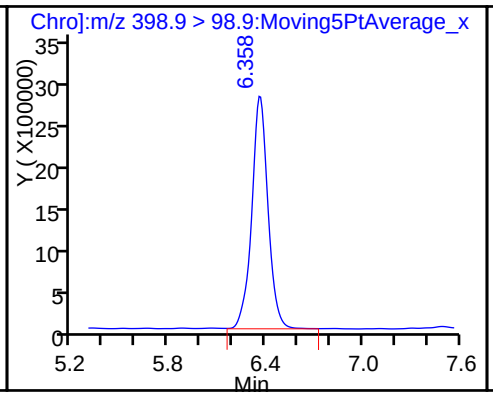
11 Perfluorohexanesulfonic acid



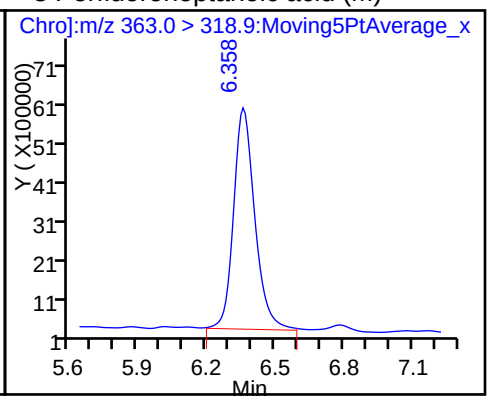
10 Perfluorohexane Sulfonate



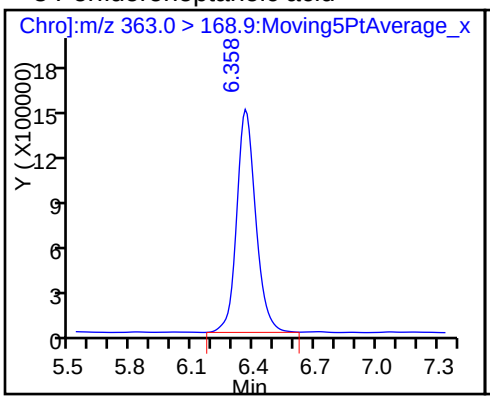
10 Perfluorohexane Sulfonate



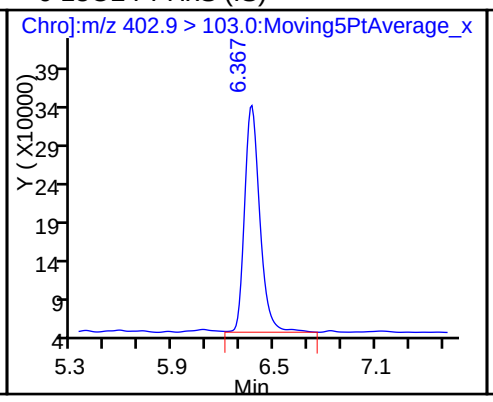
8 Perfluoroheptanoic acid (M)



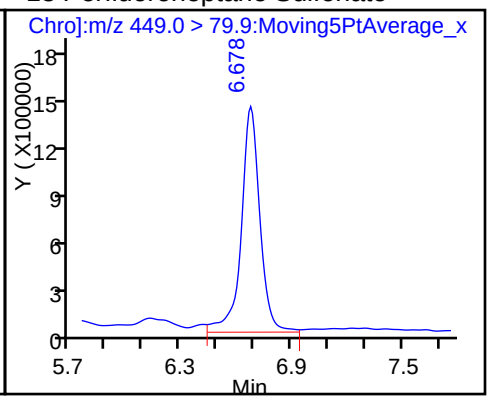
8 Perfluoroheptanoic acid



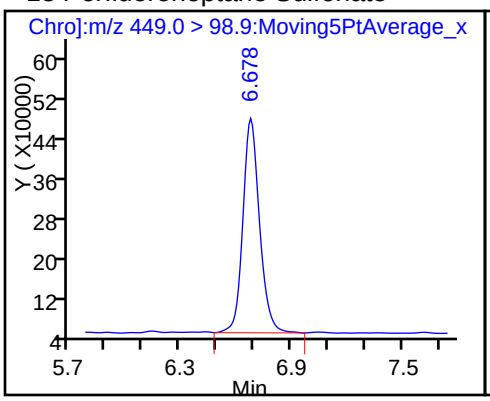
* 9 18O2 PFHxS (IS)



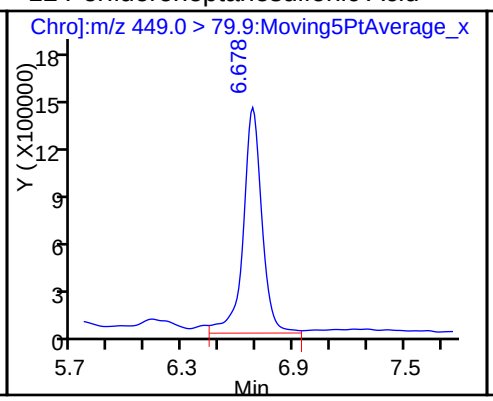
13 Perfluoroheptane Sulfonate



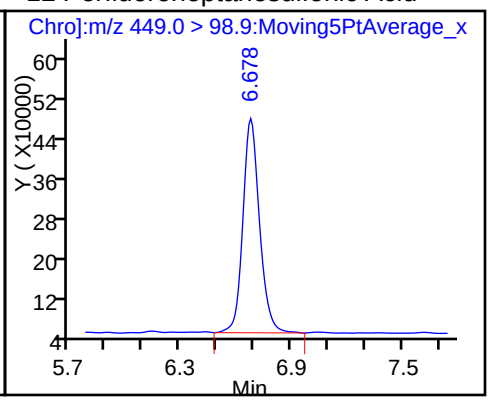
13 Perfluoroheptane Sulfonate



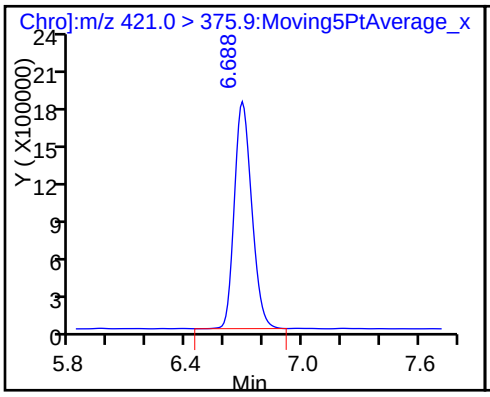
12 Perfluoroheptanesulfonic Acid



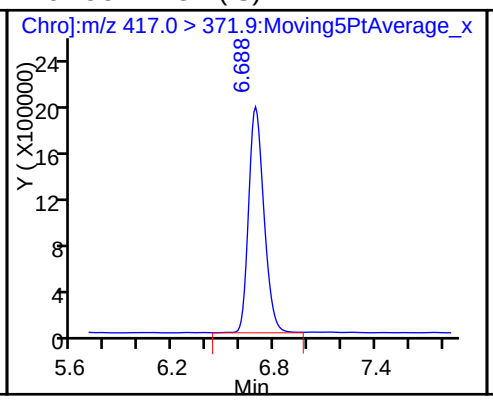
12 Perfluoroheptanesulfonic Acid



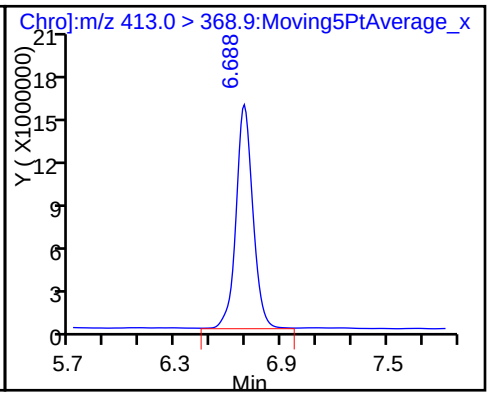
$ 14 13C8 PFOA



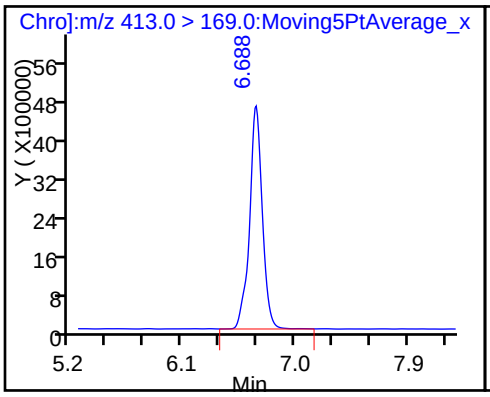
* 15 13C4 PFOA (IS)



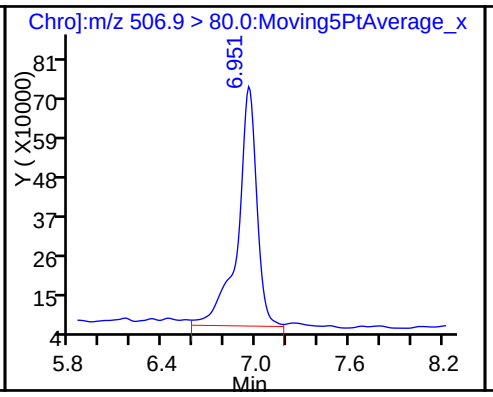
16 Perfluorooctanoic acid



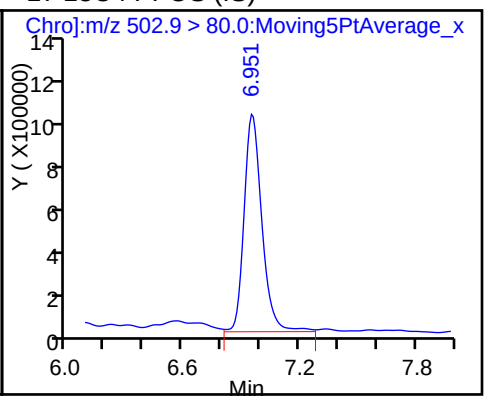
16 Perfluorooctanoic acid



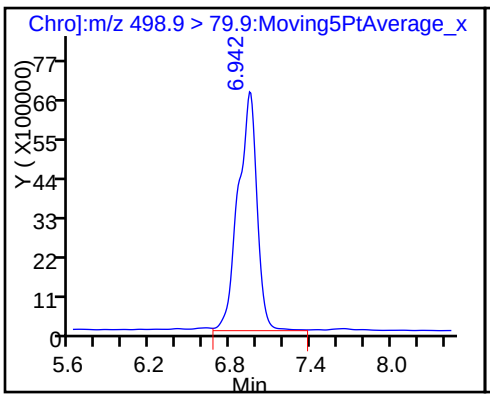
$ 18 13C8 PFOS



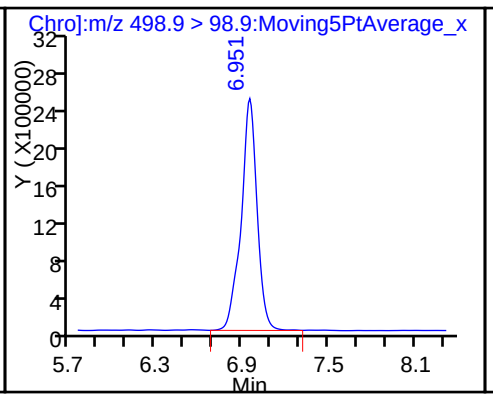
* 17 13C4 PFOS (IS)



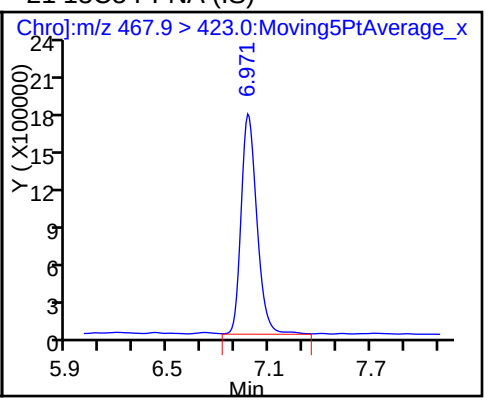
19 Perfluorooctane sulfonic acid



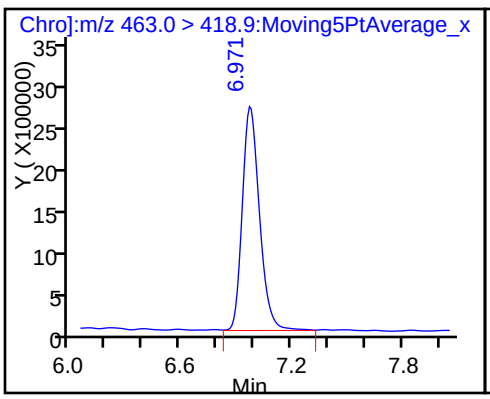
19 Perfluorooctane sulfonic acid



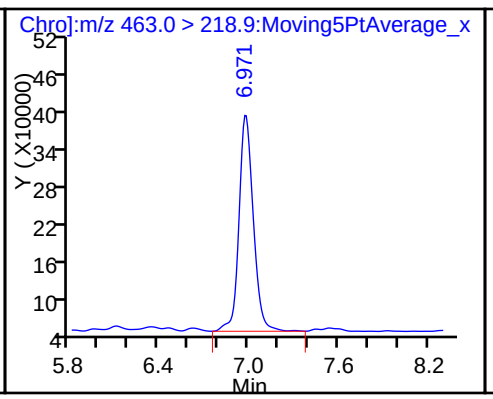
* 21 13C5 PFNA (IS)



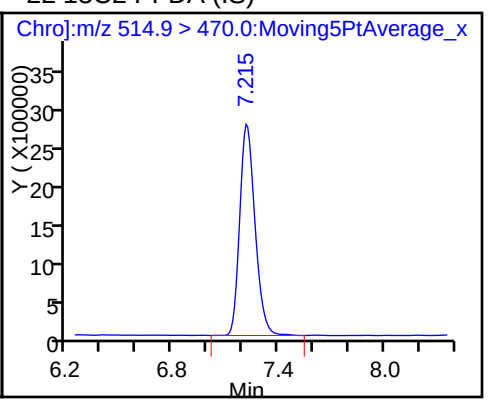
20 Perfluorononanoic acid



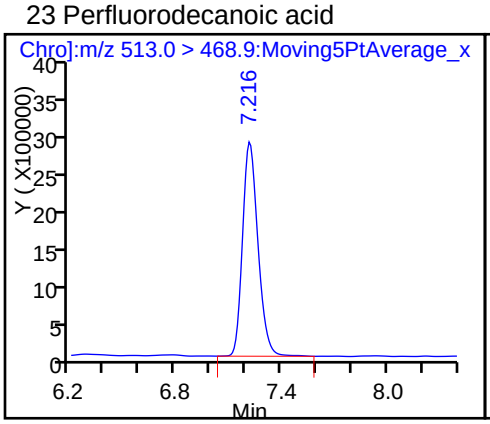
20 Perfluorononanoic acid



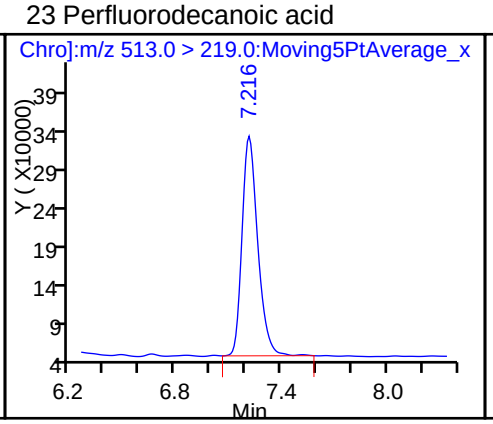
* 22 13C2 PFDA (IS)



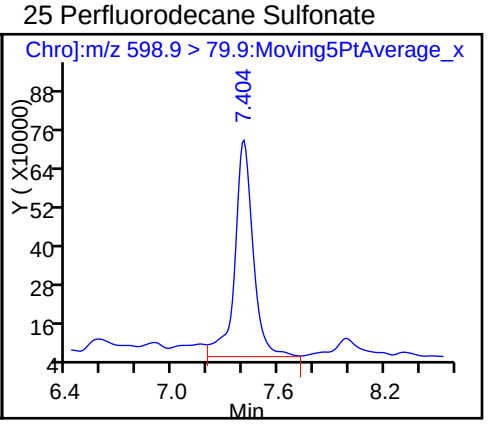
23 Perfluorodecanoic acid



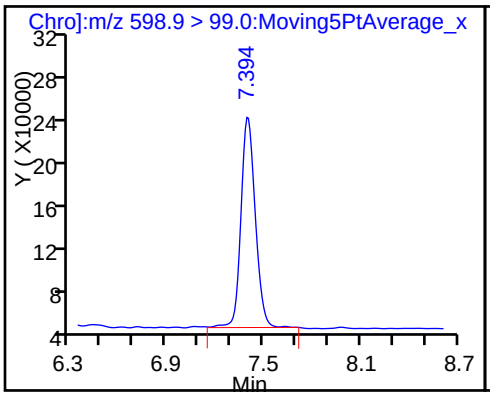
23 Perfluorodecanoic acid



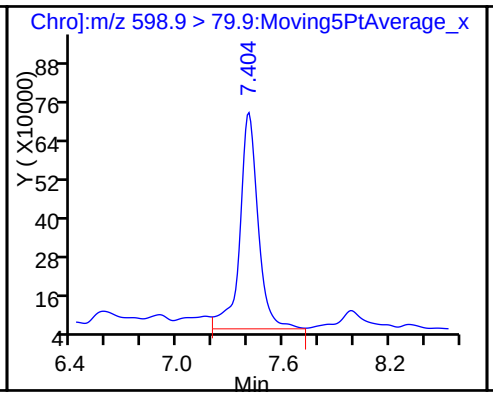
25 Perfluorodecane Sulfonate



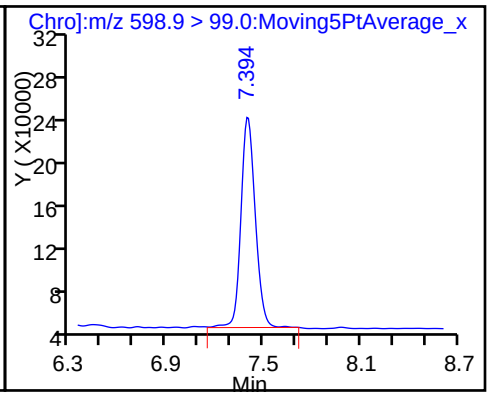
25 Perfluorodecane Sulfonate



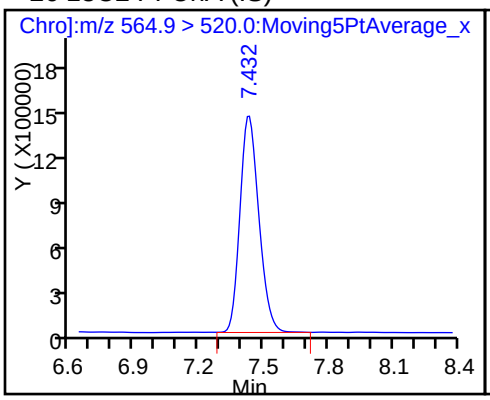
24 Perfluorodecane Sulfonic acid



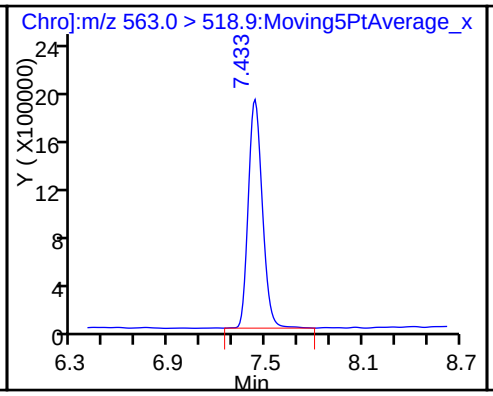
24 Perfluorodecane Sulfonic acid



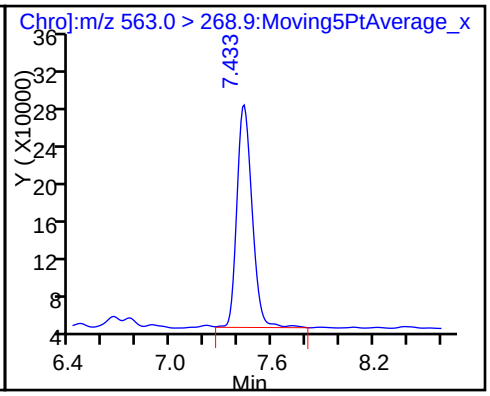
* 26 13C2 PFUnA (IS)



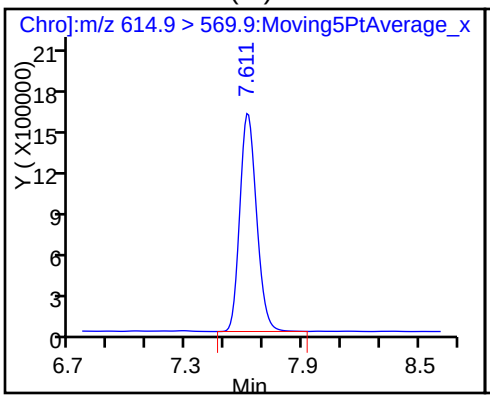
27 Perfluoroundecanoic acid



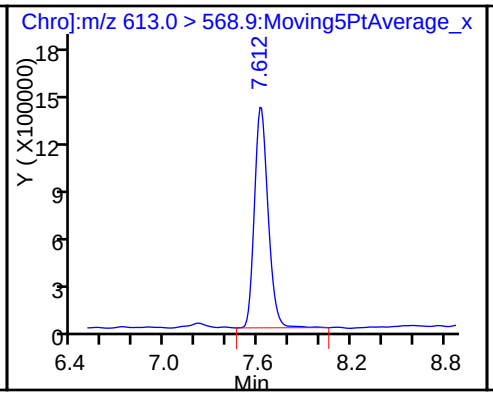
27 Perfluoroundecanoic acid



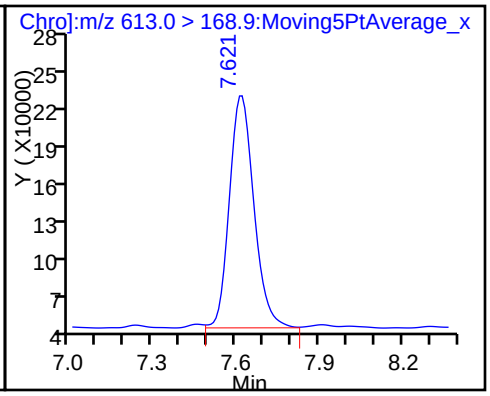
* 28 13C2 PFDoA (IS)



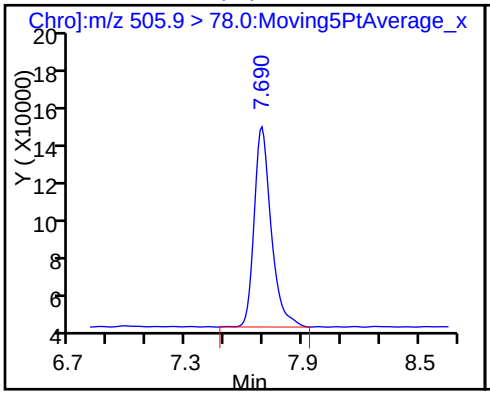
29 Perfluorododecanoic acid



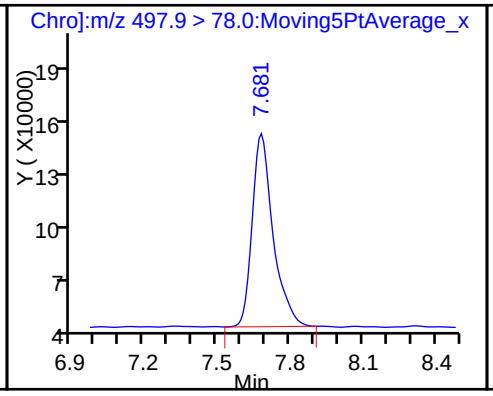
29 Perfluorododecanoic acid



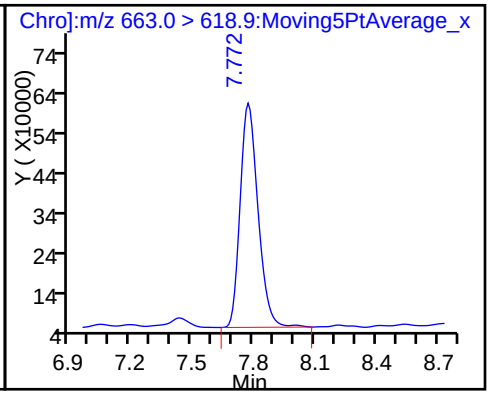
* 31 13C8 FOSA (IS)



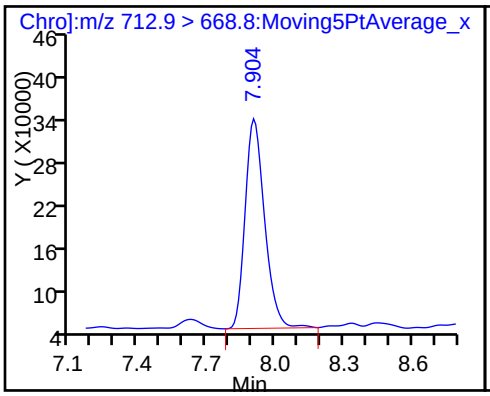
32 Perfluorooctane Sulfonamide



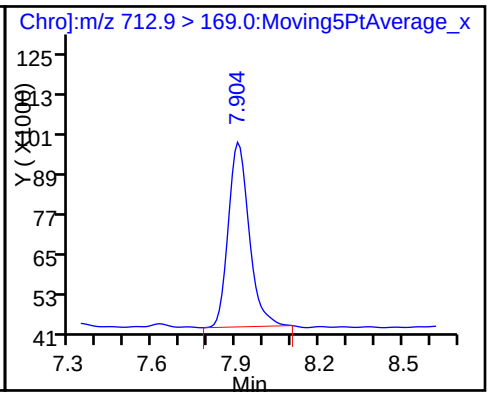
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



Manual Integration/User Assign Peak Report

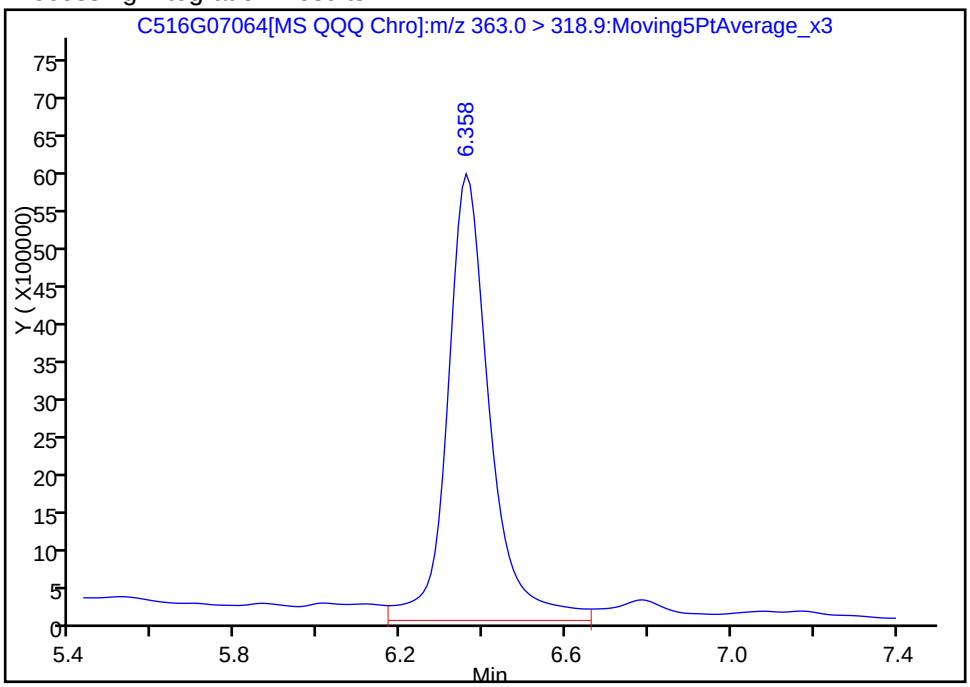
TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07064.d
Injection Date: 07-Jul-2016 19:10:52 Instrument ID: LC_LCMS5
Lims ID: 280-85194-A-1-A MS
Client ID:
Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 29
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Method: 8321_PFC Limit Group: LC - PFC
Column: Detector MS QQQ

8 Perfluoroheptanoic acid, CAS: 375-85-9

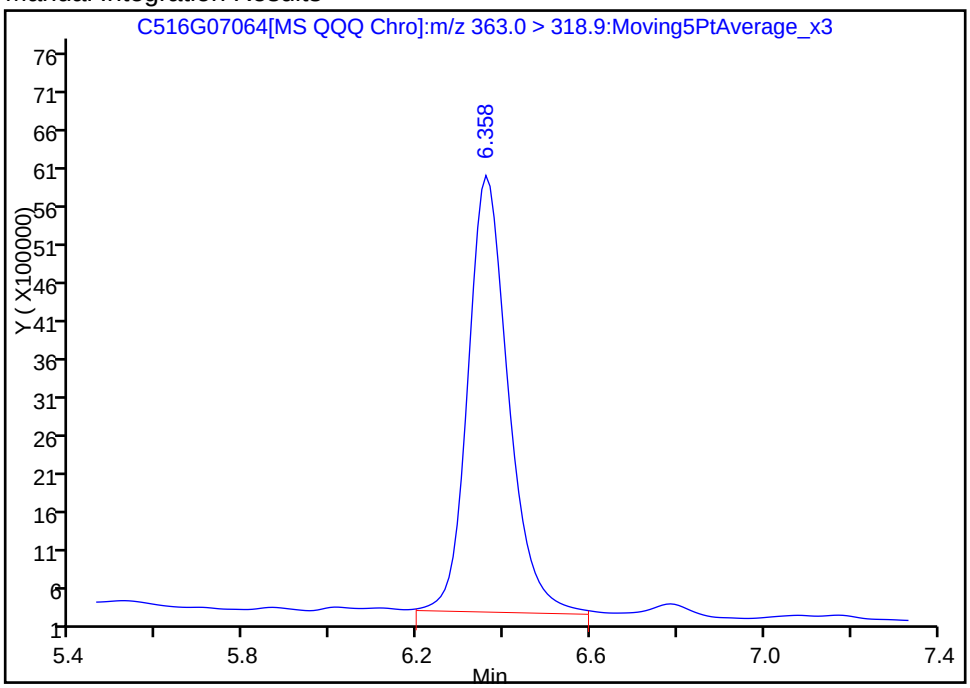
Processing Integration Results

RT: 6.36
Area: 42027219
Amount: 39.595504
Amount Units: ug/L



Manual Integration Results

RT: 6.36
Area: 37245830
Amount: 35.086965
Amount Units: ug/L



Reviewer: fiedlerh, 08-Jul-2016 08:23:40
Audit Action: Manually Integrated
Audit Reason: Assign Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB001-0.5 MSD | Lab Sample ID: 280-85171-2 MSD

Matrix: Solid | Lab File ID: PC516G07045.d

Analysis Method: DV-LC-0012 | Date Collected: 06/29/2016 16:55

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.18(g) | Date Analyzed: 07/07/2016 15:16

Con. Extract Vol.: 20.4(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 33.2 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 332793 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	21.42		1.20	0.21
375-85-9	Perfluoroheptanoic acid (PFHpA)	29.18		1.20	0.18
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	41.08		1.20	0.42
375-95-1	Perfluorononanoic acid (PFNA)	26.15		1.20	0.33
335-67-1	Perfluorooctanoic acid (PFOA)	30.59		1.20	0.34

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	107		57-153
STL01054	13C8 PFOS	101		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07045.d
Lims ID: 280-85171-A-2-C MSD
Client ID:
Sample Type: MSD
Inject. Date: 07-Jul-2016 15:16:54 ALS Bottle#: 0 Worklist Smp#: 10
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85171-A-2-C MSD, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 08-Jul-2016 09:15:01 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK002

First Level Reviewer: fiedlerh Date: 08-Jul-2016 08:10:13

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.503	4.569	-0.066		27093902	9.80			
2 Perfluorobutyric acid									
213.0 > 168.9	4.503	4.570	-0.067	1.000	25636284	8.65			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.526	5.592	-0.066	0.907	23913621	10.2			
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.639	5.705	-0.066	0.866	8360459	7.14			
298.9 > 98.9	5.639	5.705	-0.066	0.866	2530242		3.30(1.80-3.35)		
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.639	5.705	-0.066	0.866	8360459	7.14			
298.9 > 98.9	5.639	5.705	-0.066	0.866	2530242		3.30(2.57-2.57)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	6.093	6.141	-0.048		19538496	9.80			
7 Perfluorohexanoic acid									
313.0 > 268.9	6.093	6.141	-0.048	1.000	17809850	9.45			
313.0 > 118.6	6.103	6.141	-0.038	1.002	528227		33.72(34.05-63.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.509	6.537	-0.028		2078722	9.27			
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.509	6.538	-0.029	1.000	11849851	13.7			
398.9 > 98.9	6.509	6.538	-0.029	1.000	3980591		2.98(1.85-1.85)		
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.509	6.538	-0.029	1.000	11849851	13.7			R
398.9 > 98.9	6.509	6.538	-0.029	1.000	3980591		2.98(1.30-2.41)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.510	6.538	-0.028	0.950	23611029	9.73			
363.0 > 168.9	6.510	6.538	-0.028	0.950	6267128		3.77(3.35-6.23)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.830	6.858	-0.028	0.960	9095364	11.1			
449.0 > 98.9	6.830	6.858	-0.028	0.960	2948281		3.08(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.830	6.858	-0.028	0.960	9095364	11.1			
449.0 > 98.9	6.830	6.858	-0.028	0.960	2948281		3.08(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.849	6.868	-0.019	1.000	23122470	10.3			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.849	6.868	-0.019		27348333	9.80			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.849	6.868	-0.019	1.000	29633648	10.2			
413.0 > 169.0	6.840	6.868	-0.028	0.999	9116729		3.25(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	7.112	7.131	-0.019	1.000	3816116	9.21			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	7.112	7.131	-0.019		6348311	9.37			
19 Perfluorooctane sulfonic acid									RE
498.9 > 79.9	7.103	7.131	-0.028	0.999	132511274	168.1			RE
498.9 > 98.9	7.103	7.131	-0.028	0.999	43890289		3.02(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	7.132	7.160	-0.028		16807172	9.80			
20 Perfluorononanoic acid									
463.0 > 418.9	7.132	7.151	-0.019	1.000	16773353	8.72			
463.0 > 218.9	7.132	7.151	-0.019	1.000	2310067		7.26(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.367	7.386	-0.019		23989539	9.80			
23 Perfluorodecanoic acid									
513.0 > 468.9	7.367	7.386	-0.019	1.000	22577751	9.16			
513.0 > 219.0	7.367	7.386	-0.019	1.000	1919385		11.76(10.49-19.48)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.546	7.555	-0.009	1.061	9153006	10.9			
598.9 > 99.0	7.546	7.555	-0.009	1.061	2550388		3.59(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.546	7.555	-0.009	1.061	9153006	10.9			
598.9 > 99.0	7.546	7.555	-0.009	1.061	2550388		3.59(2.84-2.84)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.575	7.584	-0.009		14598511	9.80			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.575	7.584	-0.009	1.000	18176215	8.61			R
563.0 > 268.9	7.575	7.584	-0.009	1.000	2287570		7.95(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.744	7.753	-0.009		29870023	9.80			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.744	7.754	-0.010	1.000	27975420	8.93			
613.0 > 168.9	7.744	7.754	-0.010	1.000	3358047		8.33(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.785	7.870	-0.085		19414709	9.80			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.785	7.871	-0.086	1.000	20151576	9.37			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.895	7.895	0.0	1.020	23336137	8.22			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	8.027	8.027	0.0	1.037	16008239	8.89			
712.9 > 169.0	8.027	8.027	0.0	1.037	2485968		6.44(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

E - Exceeded Maximum Amount

Report Date: 08-Jul-2016 09:15:39 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07045.d

Injection Date: 07-Jul-2016 15:16:54 Instrument ID: LC_LCMS5

Lims ID: 280-85171-A-2-C MSD

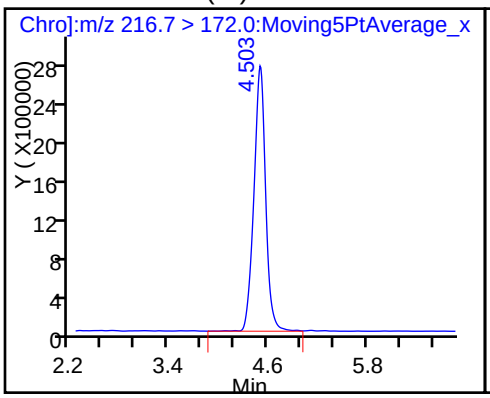
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 10

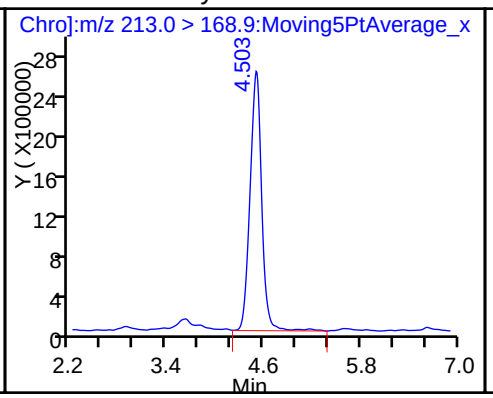
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

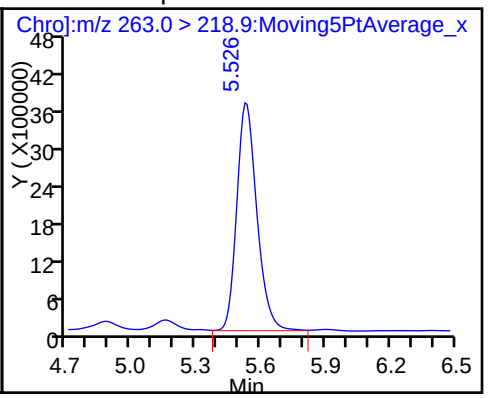
* 1 13C4 PFBA (IS)



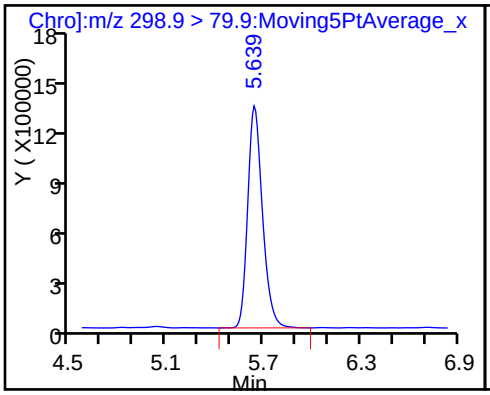
2 Perfluorobutyric acid



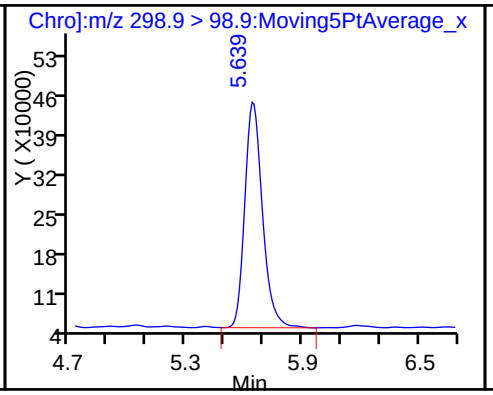
3 Perfluoropentanoic acid



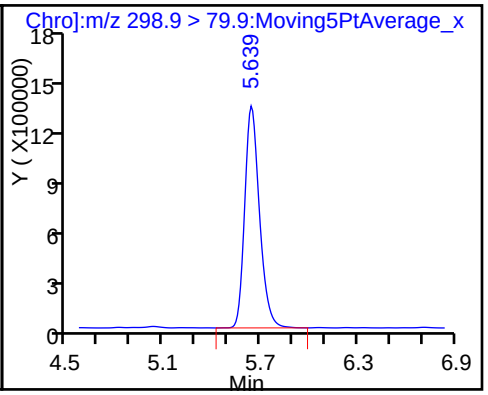
4 Perfluorobutane Sulfonate



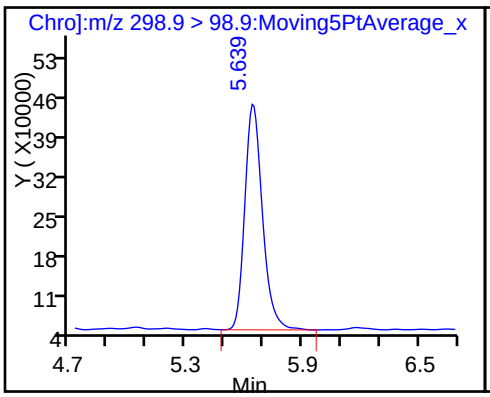
4 Perfluorobutane Sulfonate



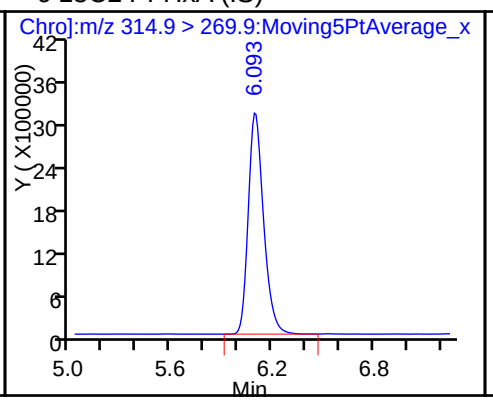
5 Perfluorobutanesulfonic acid



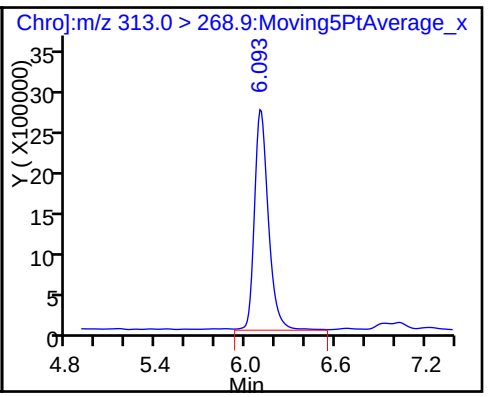
5 Perfluorobutanesulfonic acid



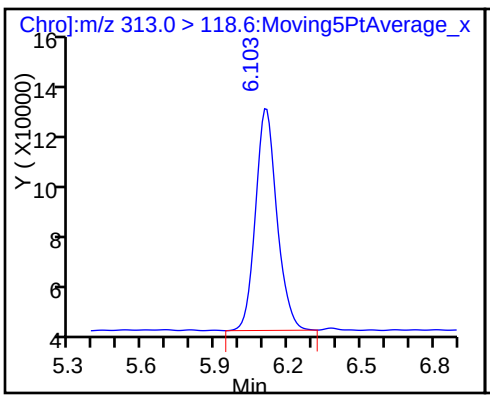
* 6 13C2 PFHxA (IS)



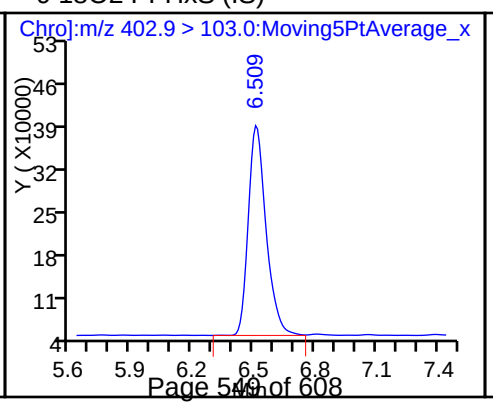
7 Perfluorohexanoic acid



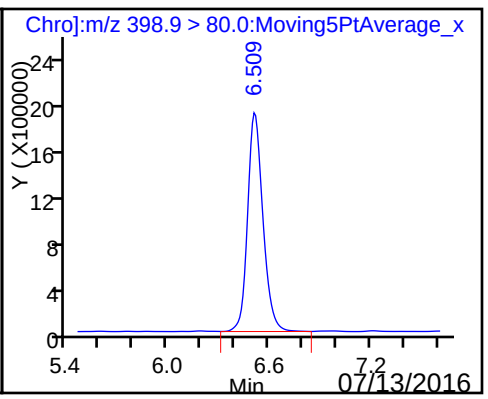
7 Perfluorohexanoic acid



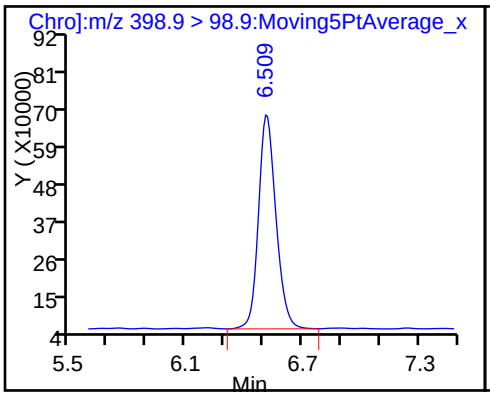
* 9 18O2 PFHxS (IS)



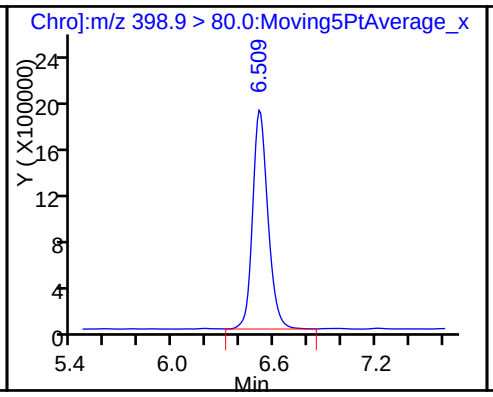
11 Perfluorohexanesulfonic acid



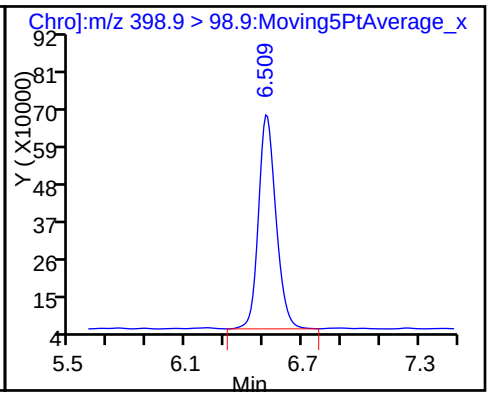
11 Perfluorohexanesulfonic acid



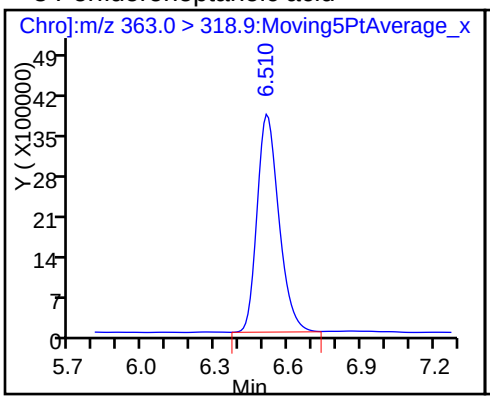
10 Perfluorohexane Sulfonate



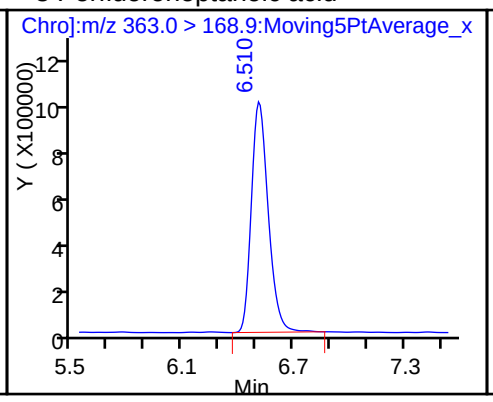
10 Perfluorohexane Sulfonate



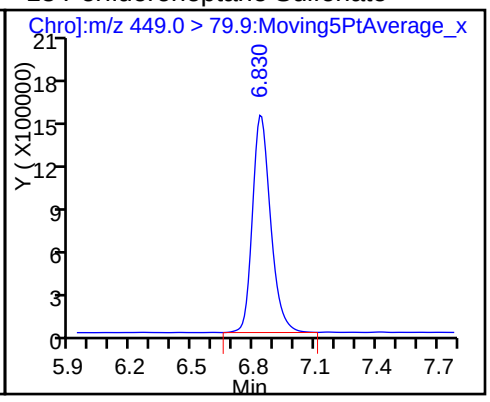
8 Perfluoroheptanoic acid



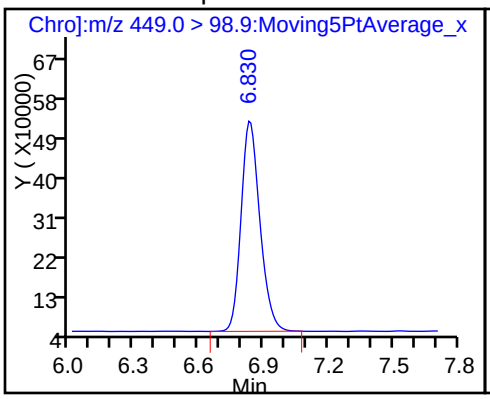
8 Perfluoroheptanoic acid



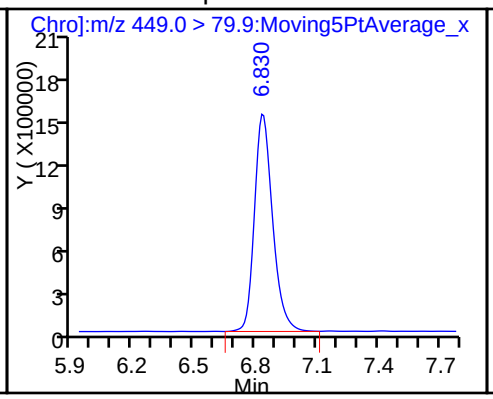
13 Perfluoroheptane Sulfonate



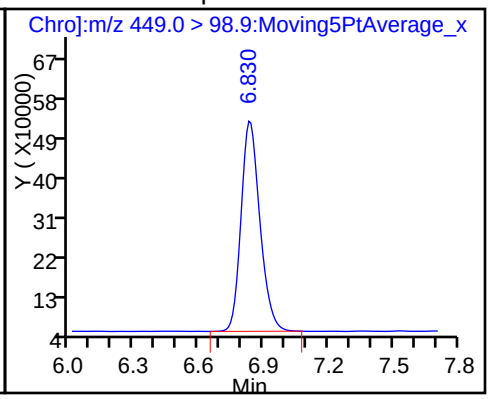
13 Perfluoroheptane Sulfonate



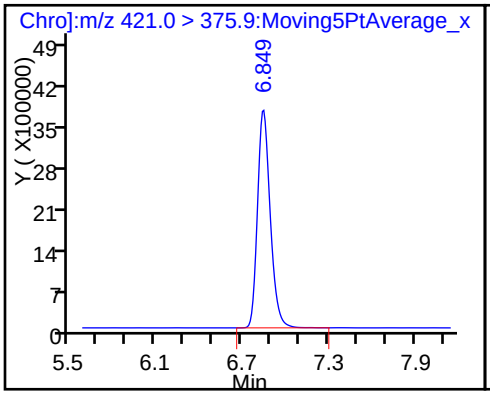
12 Perfluoroheptanesulfonic Acid



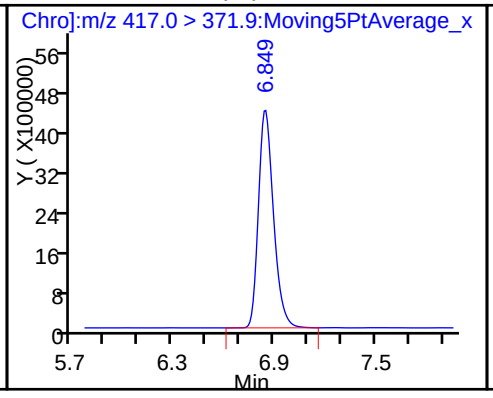
12 Perfluoroheptanesulfonic Acid



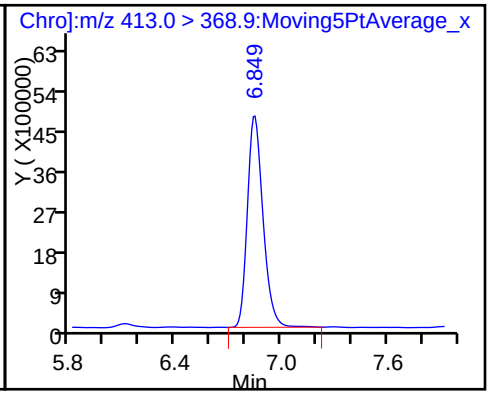
$ 14 13C8 PFOA



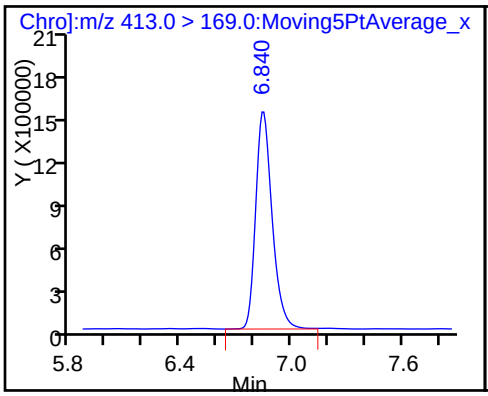
* 15 13C4 PFOA (IS)



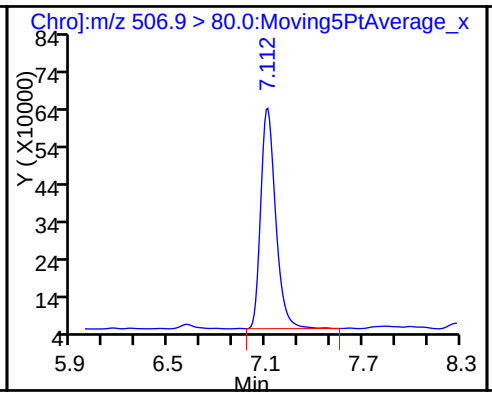
16 Perfluorooctanoic acid



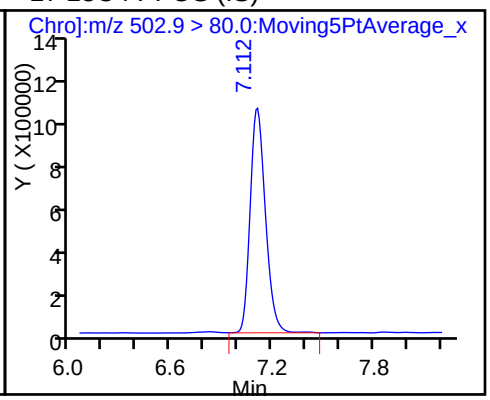
16 Perfluorooctanoic acid



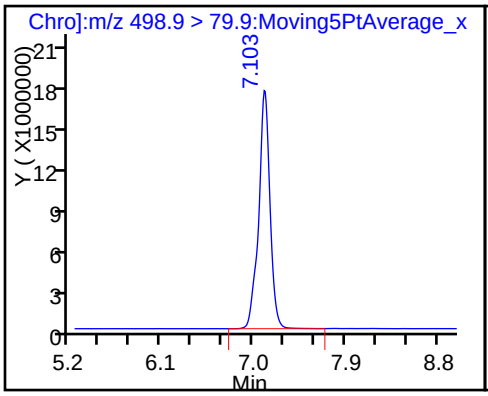
$ 18 13C8 PFOS



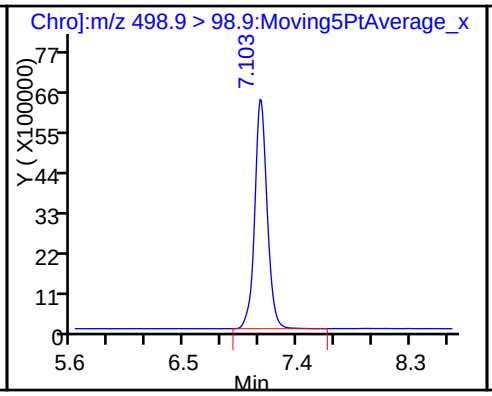
* 17 13C4 PFOS (IS)



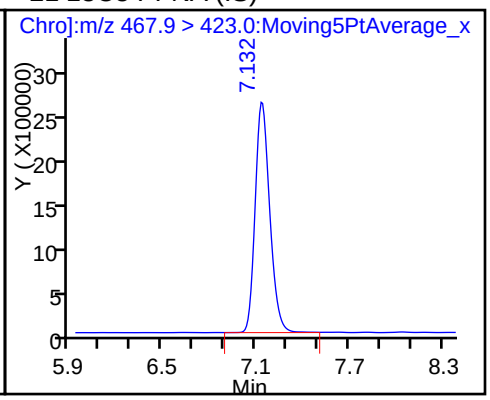
19 Perfluorooctane sulfonic acid



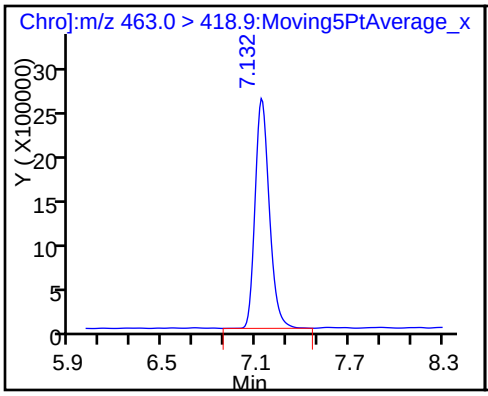
19 Perfluorooctane sulfonic acid



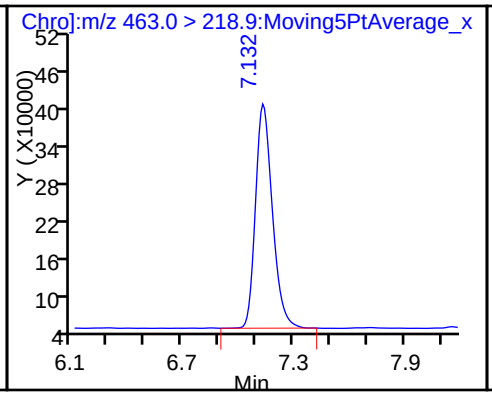
* 21 13C5 PFNA (IS)



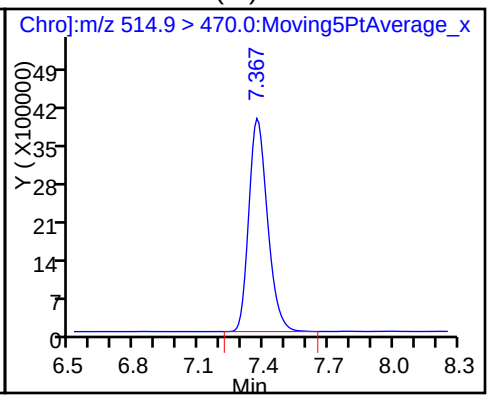
20 Perfluorononanoic acid



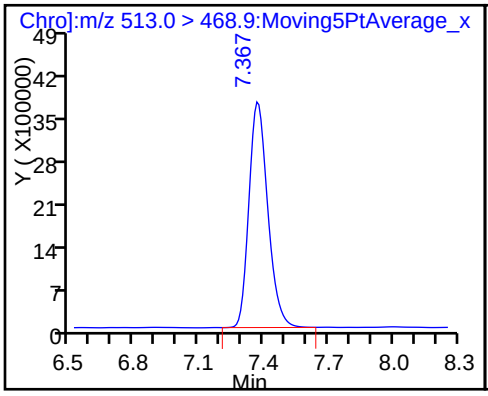
20 Perfluorononanoic acid



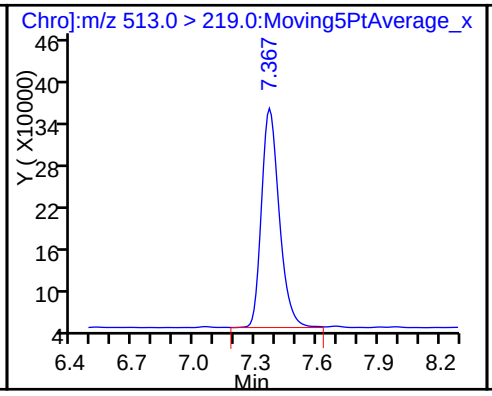
* 22 13C2 PFDA (IS)



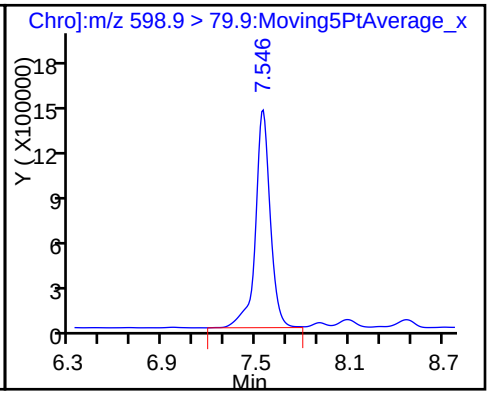
23 Perfluorodecanoic acid



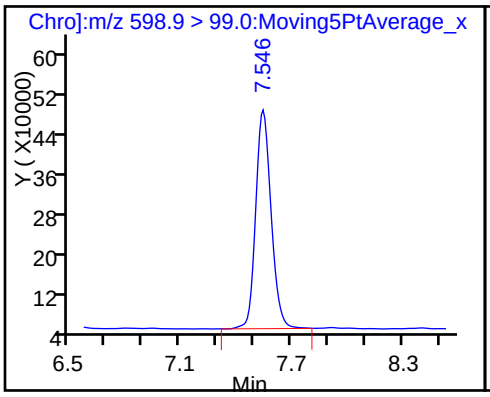
23 Perfluorodecanoic acid



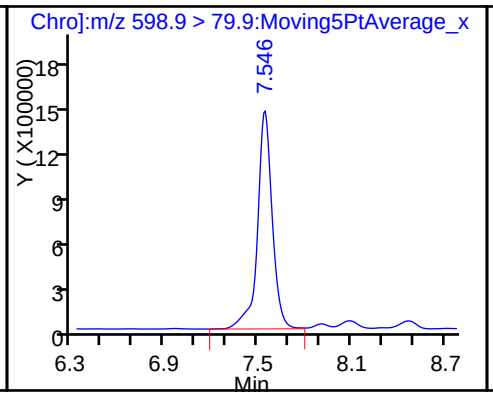
25 Perfluorodecane Sulfonate



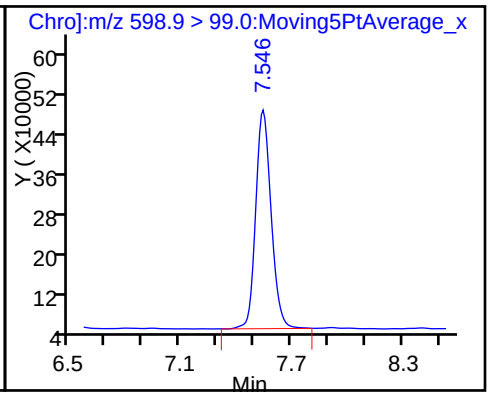
25 Perfluorodecane Sulfonate



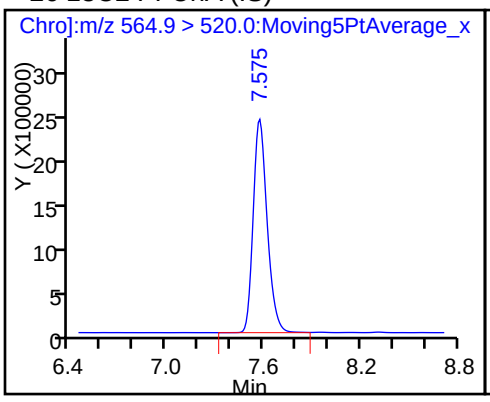
24 Perfluorodecane Sulfonic acid



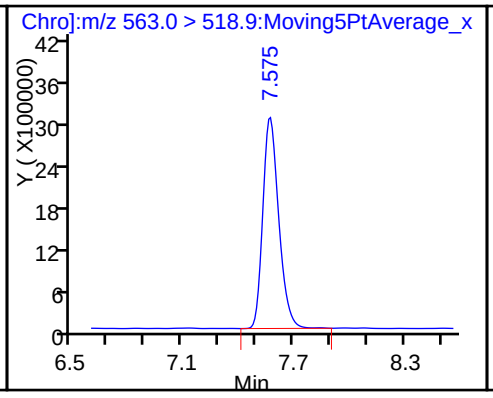
24 Perfluorodecane Sulfonic acid



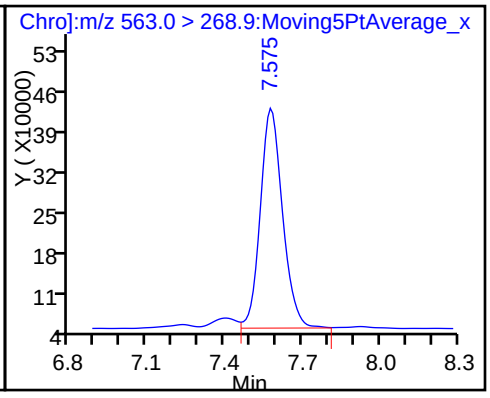
* 26 13C2 PFUnA (IS)



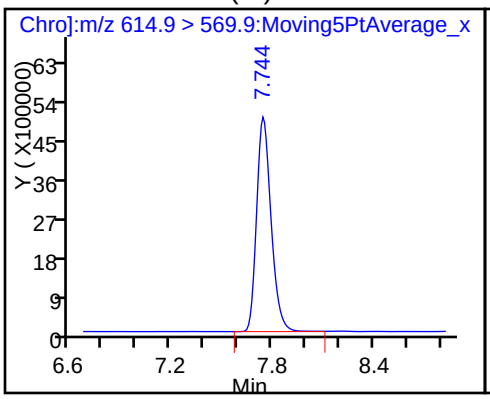
27 Perfluoroundecanoic acid



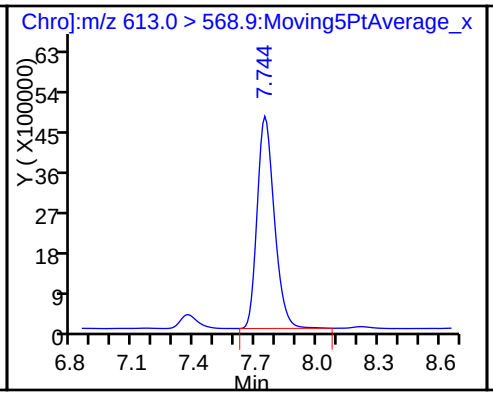
27 Perfluoroundecanoic acid



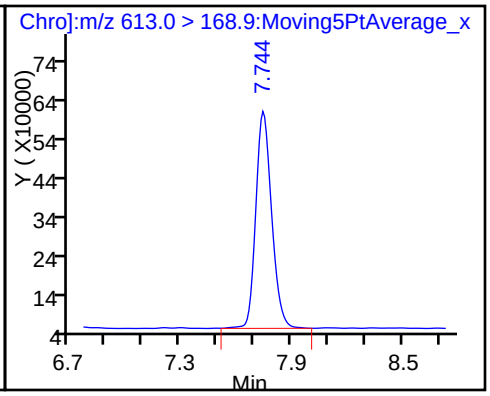
* 28 13C2 PFDoA (IS)



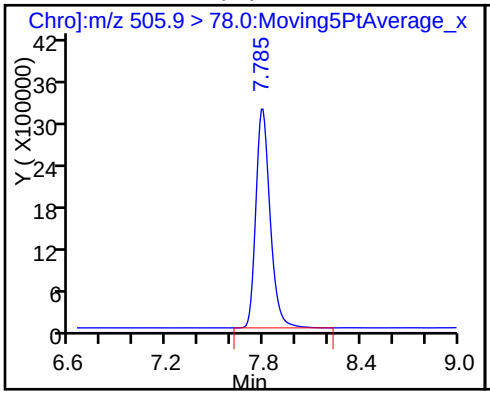
29 Perfluorododecanoic acid



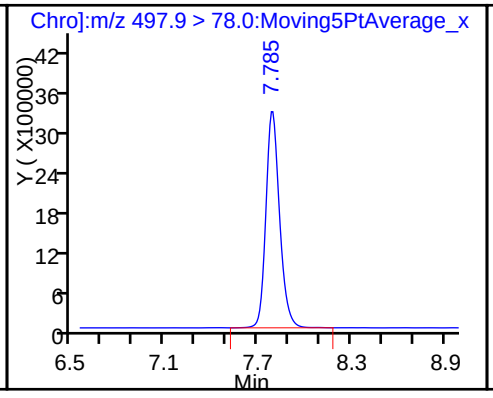
29 Perfluorododecanoic acid



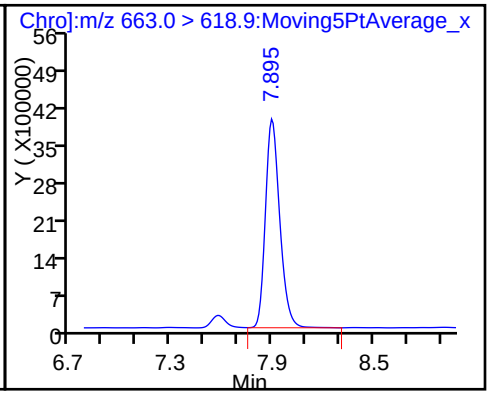
* 31 13C8 FOSA (IS)



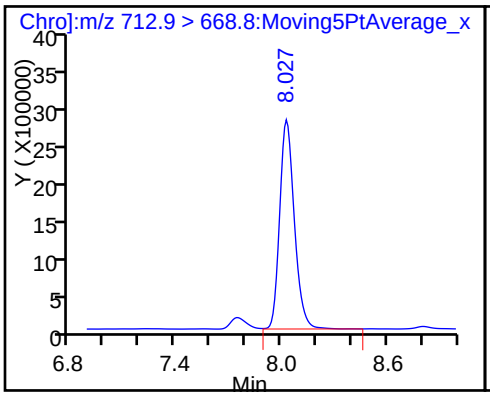
32 Perfluorooctane Sulfonamide



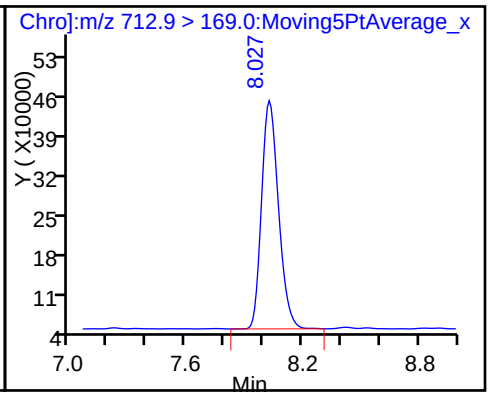
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB001-0.5 MSD DL | Lab Sample ID: 280-85171-2 MSD DL

Matrix: Solid | Lab File ID: PC516G08011.d

Analysis Method: DV-LC-0012 | Date Collected: 06/29/2016 16:55

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.18(g) | Date Analyzed: 07/08/2016 13:38

Con. Extract Vol.: 20.4(mL) | Dilution Factor: 5

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 33.2 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 333083 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	519.5		6.00	1.05

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	103	D	57-153
STL01054	13C8 PFOS	93	D	70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08011.d
Lims ID: 280-85171-A-2-C MSD
Client ID:
Sample Type: MSD
Inject. Date: 08-Jul-2016 13:38:09 ALS Bottle#: 0 Worklist Smp#: 6
Injection Vol: 25.0 ul Dil. Factor: 5.0000
Sample Info: 280-85171-A-2-C MSD, Sample
Misc. Info.: 5x
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 12-Jul-2016 11:18:02 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK010

First Level Reviewer: tinkhams Date: 12-Jul-2016 11:18:02

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.352	4.323	0.029		6120374	1.96			
2 Perfluorobutyric acid									
213.0 > 168.9	4.352	4.323	0.029	1.000	6344881	1.90			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.346	5.308	0.038	0.903	5210954	2.01			
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.459	5.412	0.047	0.859	1746457	1.26			
298.9 > 98.9	5.450	5.412	0.038	0.857	530753		3.29(1.80-3.35)		
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.459	5.412	0.047	0.859	1746457	1.26			
298.9 > 98.9	5.450	5.412	0.038	0.857	530753		3.29(2.57-2.57)		
7 Perfluorohexanoic acid									
313.0 > 268.9	5.923	5.857	0.066	1.000	3851930	1.85			
313.0 > 118.6	5.923	5.857	0.066	1.000	120476		31.97(34.05-63.23)		
* 6 13C2 PFHxA (IS)									M
314.9 > 269.9	5.923	5.856	0.067		4270426	1.96			M
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.357	6.282	0.075		494625	1.85			
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.358	6.282	0.076	1.000	2527477	2.39			
398.9 > 98.9	6.358	6.282	0.076	1.000	976535		2.59(1.85-1.85)		
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.358	6.282	0.076	1.000	2527477	2.39			R
398.9 > 98.9	6.358	6.282	0.076	1.000	976535		2.59(1.30-2.41)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.358	6.282	0.076	0.949	5328526	1.91			
363.0 > 168.9	6.358	6.282	0.076	0.949	1408039		3.78(3.35-6.23)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.688	6.621	0.067	0.959	1858791	1.83			
449.0 > 98.9	6.688	6.621	0.067	0.959	583126		3.19(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.688	6.621	0.067	0.959	1858791	1.83			
449.0 > 98.9	6.688	6.621	0.067	0.959	583126		3.19(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.697	6.631	0.066	1.000	5176639	1.99			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.698	6.631	0.067		6192586	1.96			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.698	6.632	0.066	1.000	6845893	2.02			
413.0 > 169.0	6.698	6.632	0.066	1.000	2079875		3.29(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.970	6.913	0.057	1.000	888709	1.70			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.970	6.913	0.057		1582018	1.87			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.970	6.914	0.056	1.000	34076725	34.6			R
498.9 > 98.9	6.970	6.914	0.056	1.000	11467054		2.97(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.990	6.933	0.057		4668093	1.96			
20 Perfluorononanoic acid									
463.0 > 418.9	6.990	6.933	0.057	1.000	5036738	1.85			
463.0 > 218.9	6.990	6.933	0.057	1.000	673220		7.48(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.234	7.187	0.047		5104240	1.96			
23 Perfluorodecanoic acid									R
513.0 > 468.9	7.244	7.187	0.057	1.001	5159662	1.94			R
513.0 > 219.0	7.234	7.187	0.047	1.000	497059		10.38(10.49-19.48)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.423	7.375	0.048	1.065	1809719	1.70			
598.9 > 99.0	7.423	7.375	0.048	1.065	513948		3.52(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.423	7.375	0.048	1.065	1809719	1.70			
598.9 > 99.0	7.423	7.375	0.048	1.065	513948		3.52(2.84-2.84)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.451	7.414	0.037		3097514	1.96			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.452	7.414	0.038	1.000	4376650	1.91			R
563.0 > 268.9	7.452	7.414	0.038	1.000	525150		8.33(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.630	7.592	0.038		6759408	1.96			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.631	7.593	0.038	1.000	5797053	1.59			
613.0 > 168.9	7.631	7.593	0.038	1.000	847788		6.84(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.652	7.614	0.038		4922201	1.96			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.653	7.615	0.038	1.000	4698721	1.72			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.791	7.753	0.038	1.021	5034515	1.50			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.923	7.895	0.028	1.038	3571152	1.75			
712.9 > 169.0	7.923	7.895	0.028	1.038	552625		6.46(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Review Flags

M - Manually Integrated

Report Date: 12-Jul-2016 11:18:04 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08011.d

Injection Date: 08-Jul-2016 13:38:09 Instrument ID: LC_LCMS5

Lims ID: 280-85171-A-2-C MSD

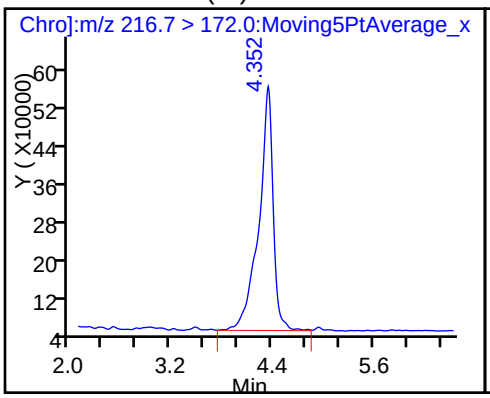
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 6

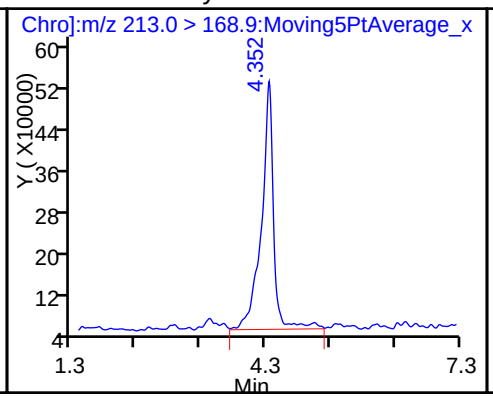
Injection Vol: 25.0 ul Dil. Factor: 5.0000

Method: 8321_PFC Limit Group: LC - PFC

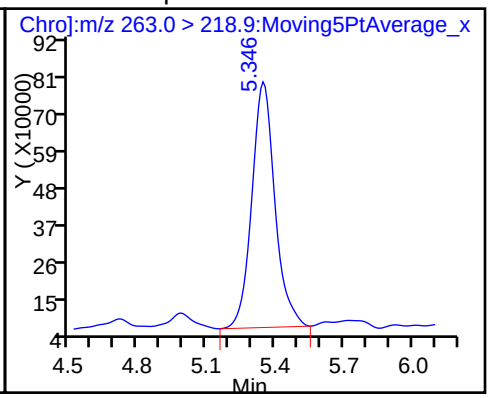
* 1 13C4 PFBA (IS)



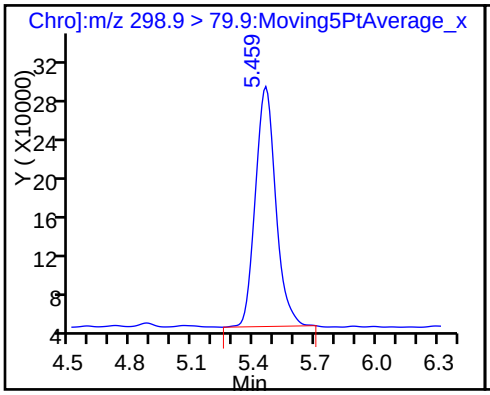
2 Perfluorobutyric acid



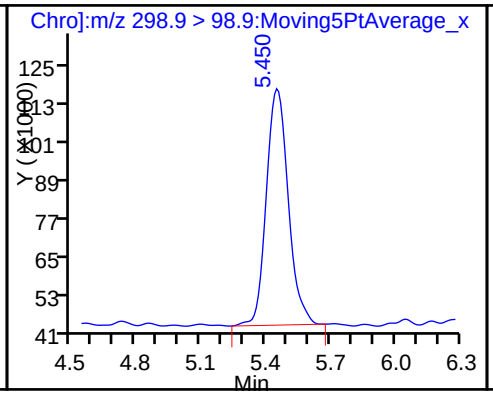
3 Perfluoropentanoic acid



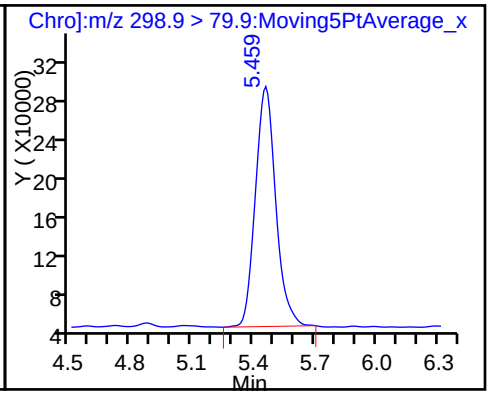
4 Perfluorobutane Sulfonate



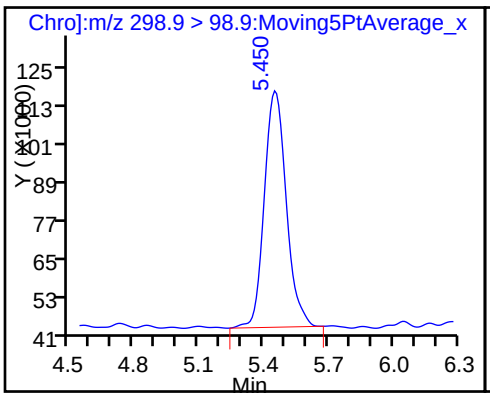
4 Perfluorobutane Sulfonate



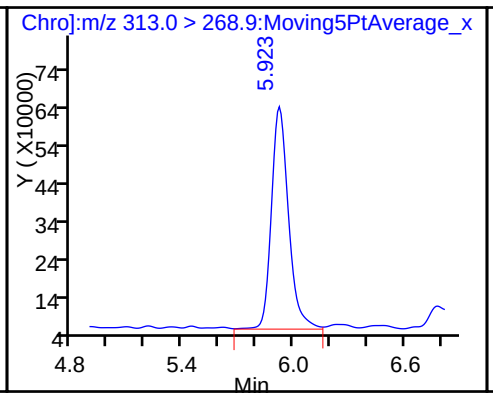
5 Perfluorobutanesulfonic acid



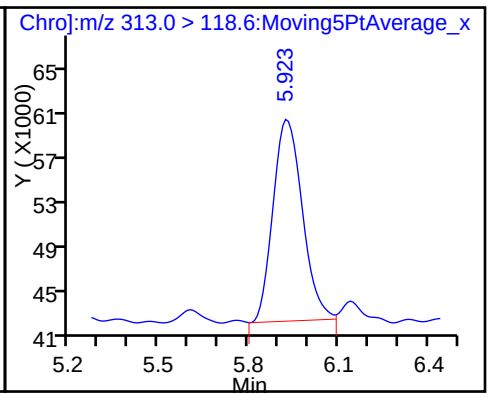
5 Perfluorobutanesulfonic acid



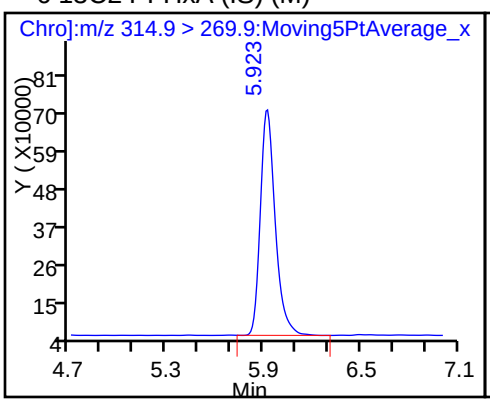
7 Perfluorohexanoic acid



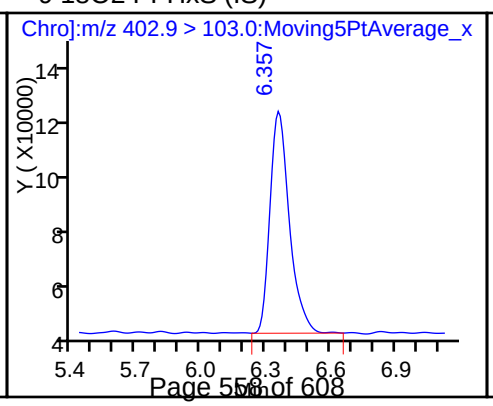
7 Perfluorohexanoic acid



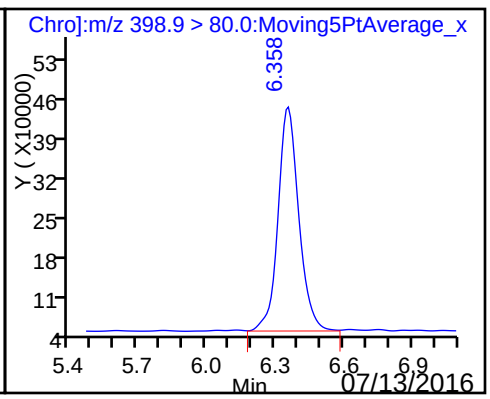
* 6 13C2 PFHxA (IS) (M)



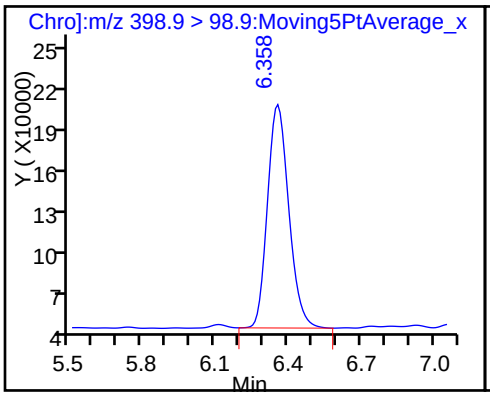
* 9 18O2 PFHxS (IS)



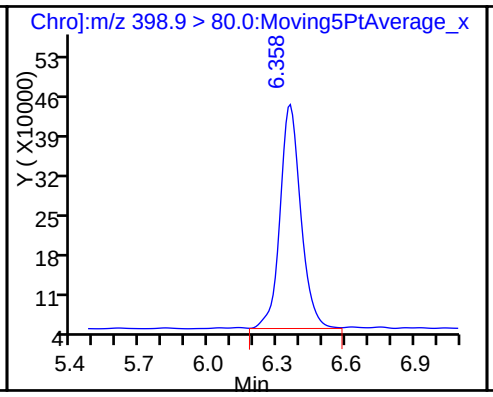
11 Perfluorohexanesulfonic acid



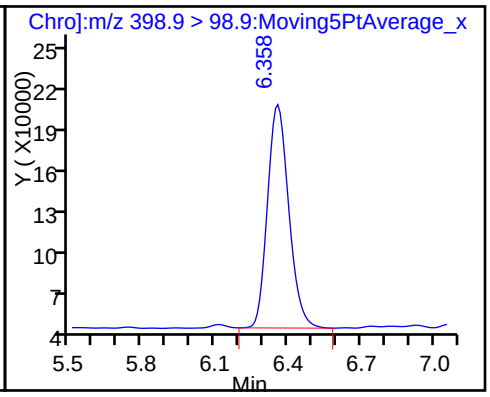
11 Perfluorohexanesulfonic acid



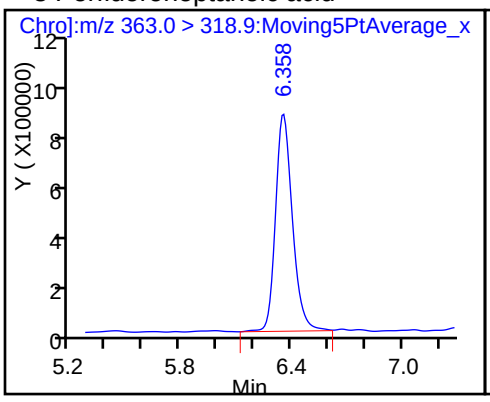
10 Perfluorohexane Sulfonate



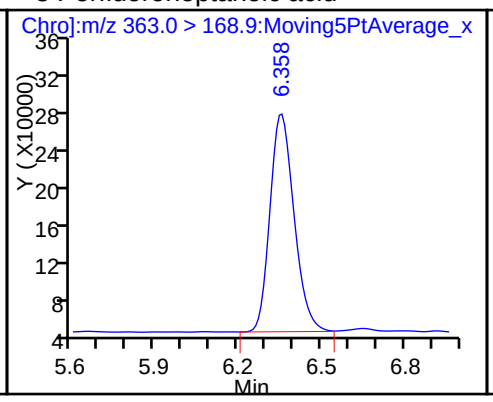
10 Perfluorohexane Sulfonate



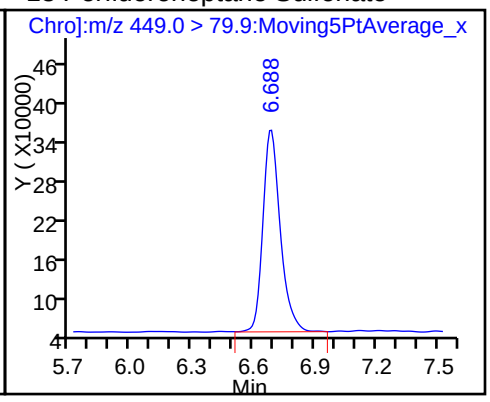
8 Perfluoroheptanoic acid



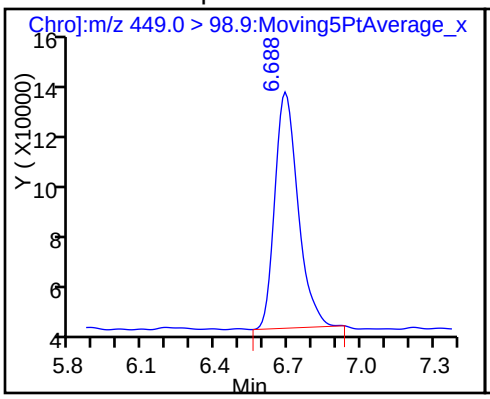
8 Perfluoroheptanoic acid



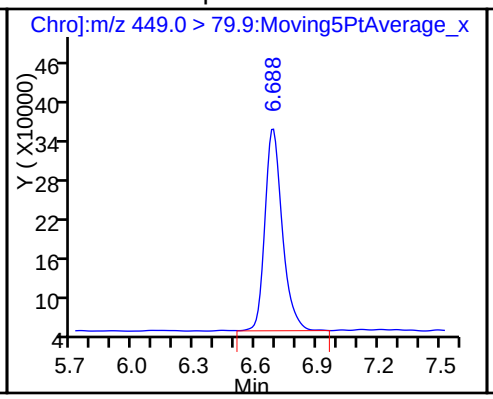
13 Perfluoroheptane Sulfonate



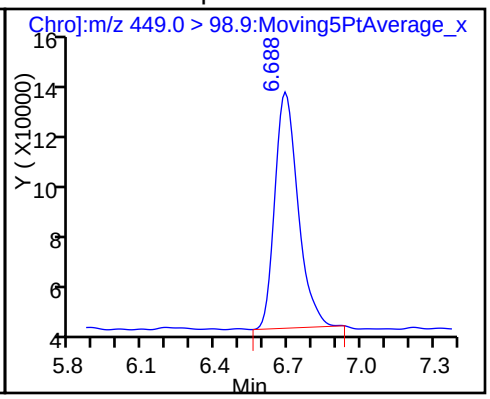
13 Perfluoroheptane Sulfonate



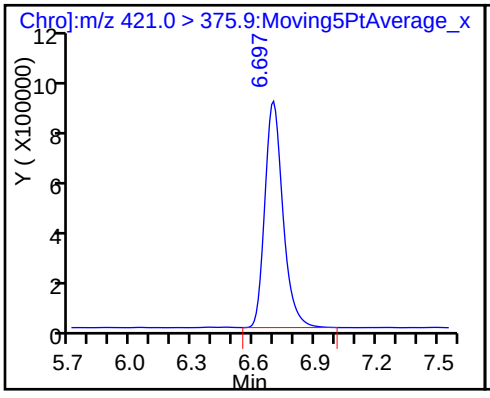
12 Perfluoroheptanesulfonic Acid



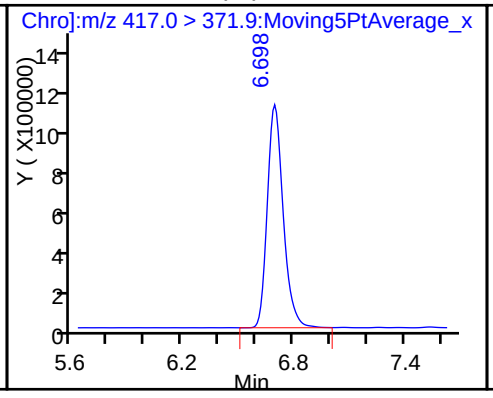
12 Perfluoroheptanesulfonic Acid



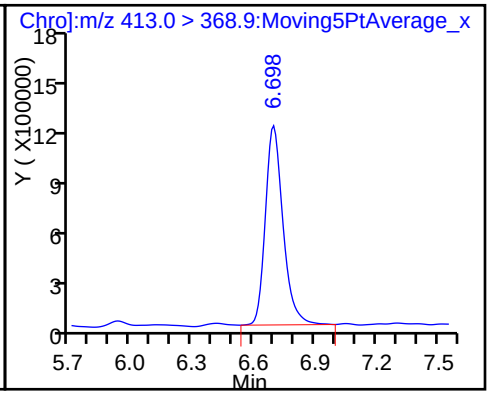
$ 14 13C8 PFOA



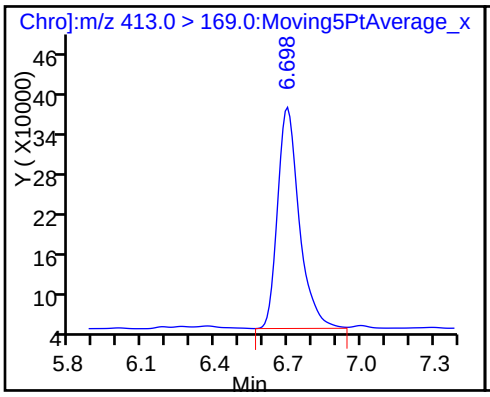
* 15 13C4 PFOA (IS)



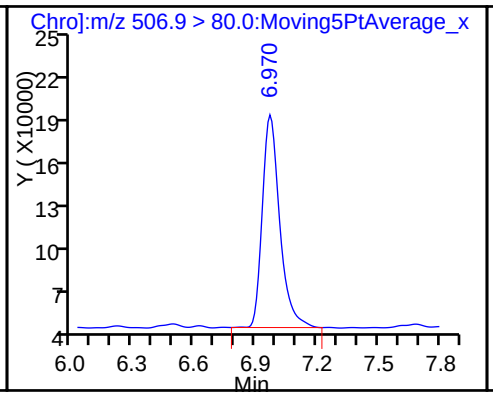
16 Perfluorooctanoic acid



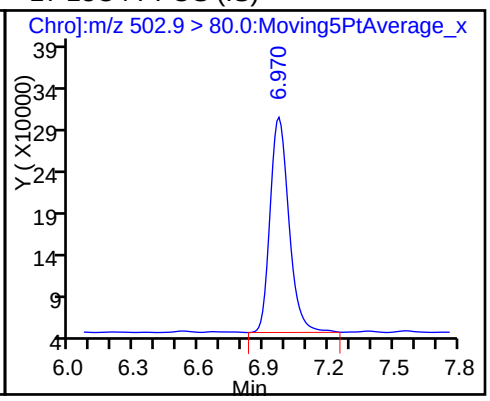
16 Perfluorooctanoic acid



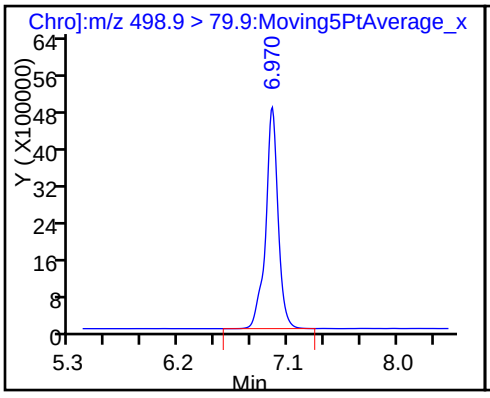
$ 18 13C8 PFOS



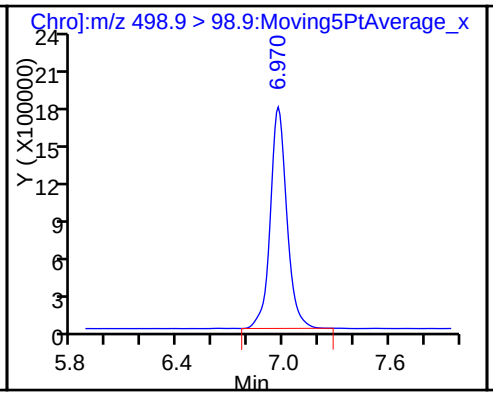
* 17 13C4 PFOS (IS)



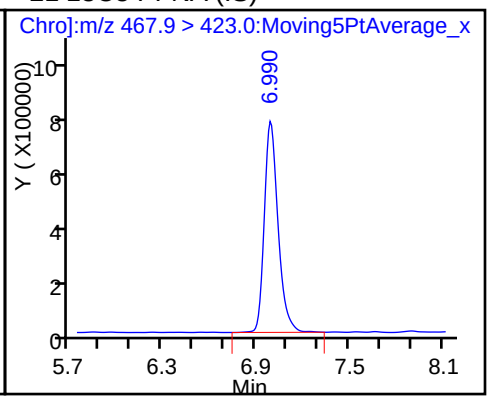
19 Perfluorooctane sulfonic acid



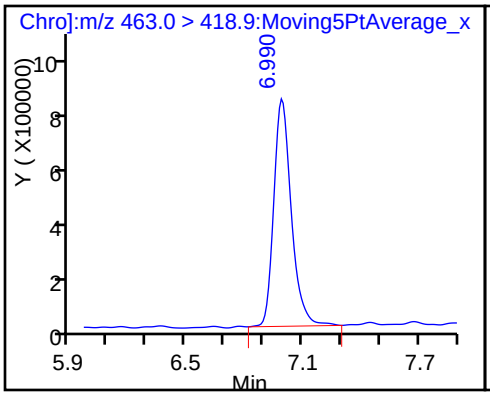
19 Perfluorooctane sulfonic acid



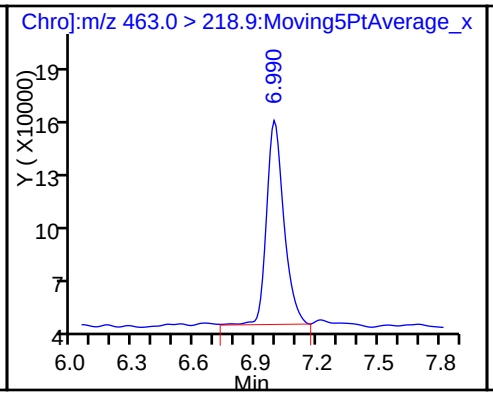
* 21 13C5 PFNA (IS)



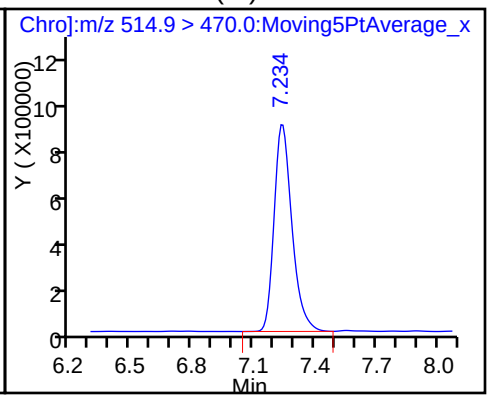
20 Perfluorononanoic acid



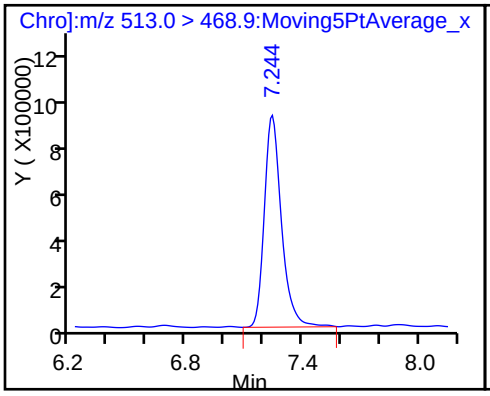
20 Perfluorononanoic acid



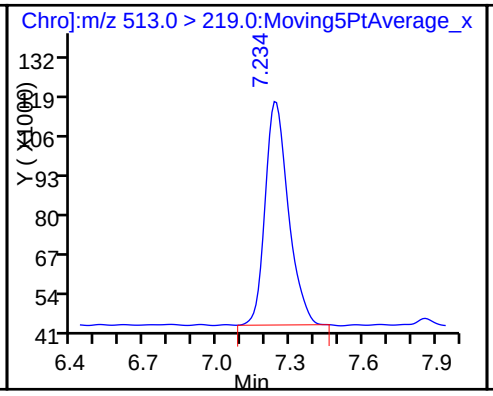
* 22 13C2 PFDA (IS)



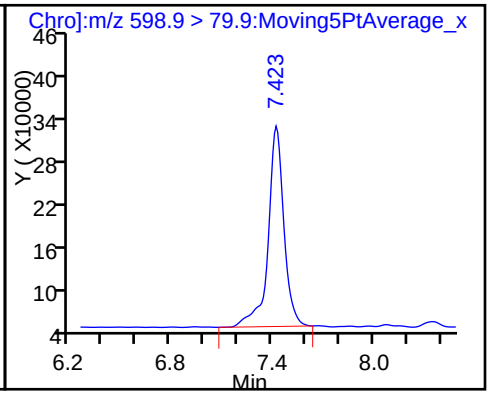
23 Perfluorodecanoic acid



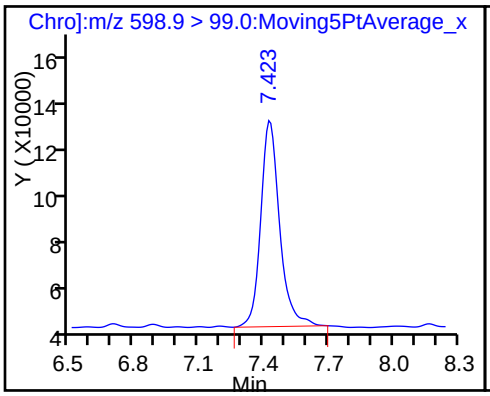
23 Perfluorodecanoic acid



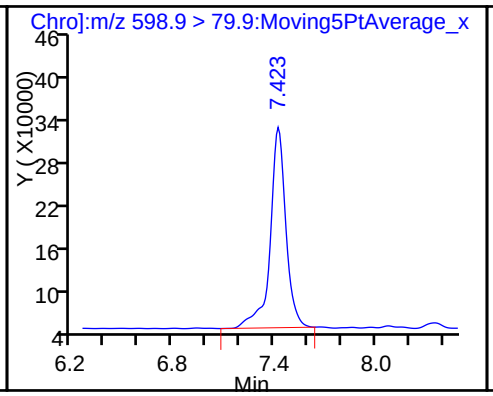
25 Perfluorodecane Sulfonate



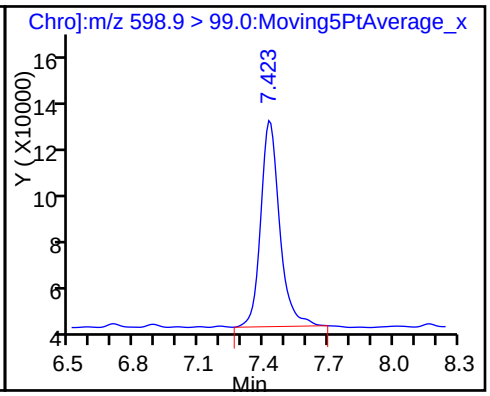
25 Perfluorodecane Sulfonate



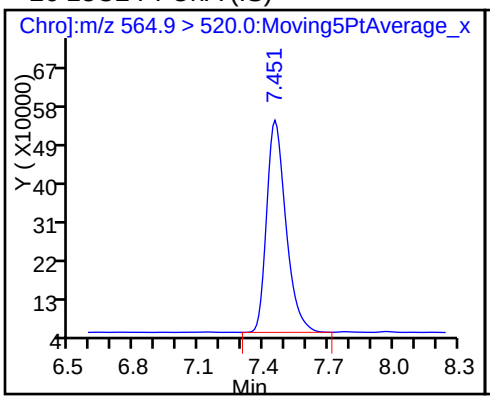
24 Perfluorodecane Sulfonic acid



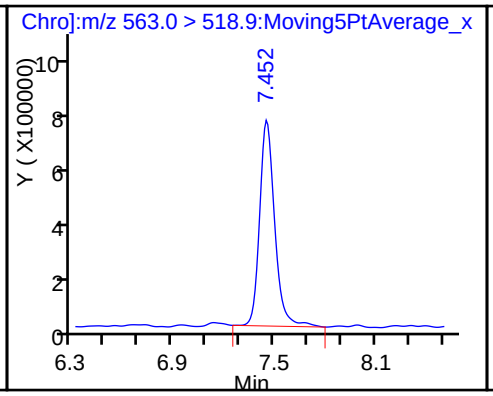
24 Perfluorodecane Sulfonic acid



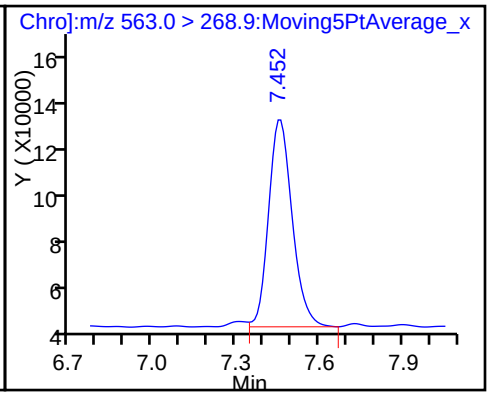
* 26 13C2 PFUnA (IS)



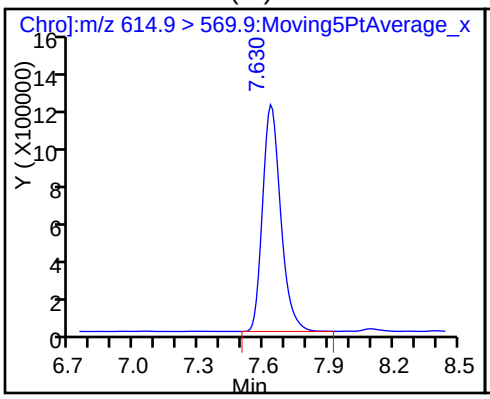
27 Perfluoroundecanoic acid



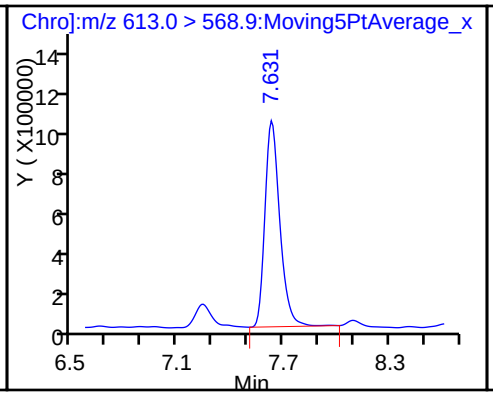
27 Perfluoroundecanoic acid



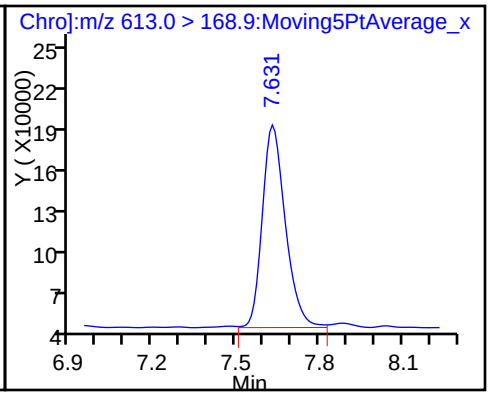
* 28 13C2 PFDoA (IS)



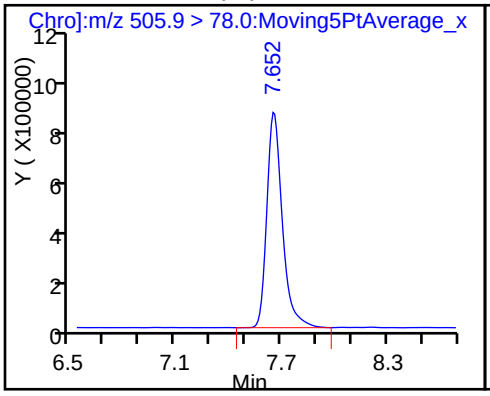
29 Perfluorododecanoic acid



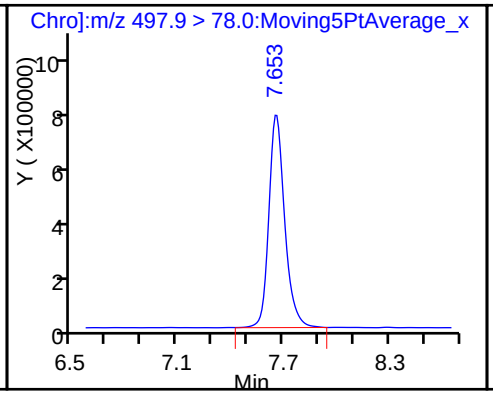
29 Perfluorododecanoic acid



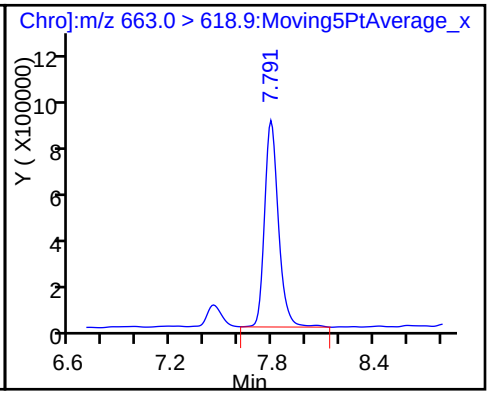
* 31 13C8 FOSA (IS)



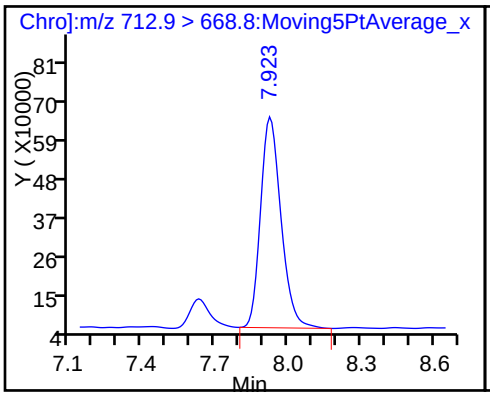
32 Perfluorooctane Sulfonamide



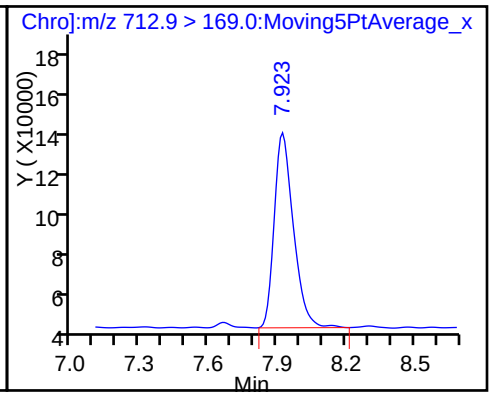
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



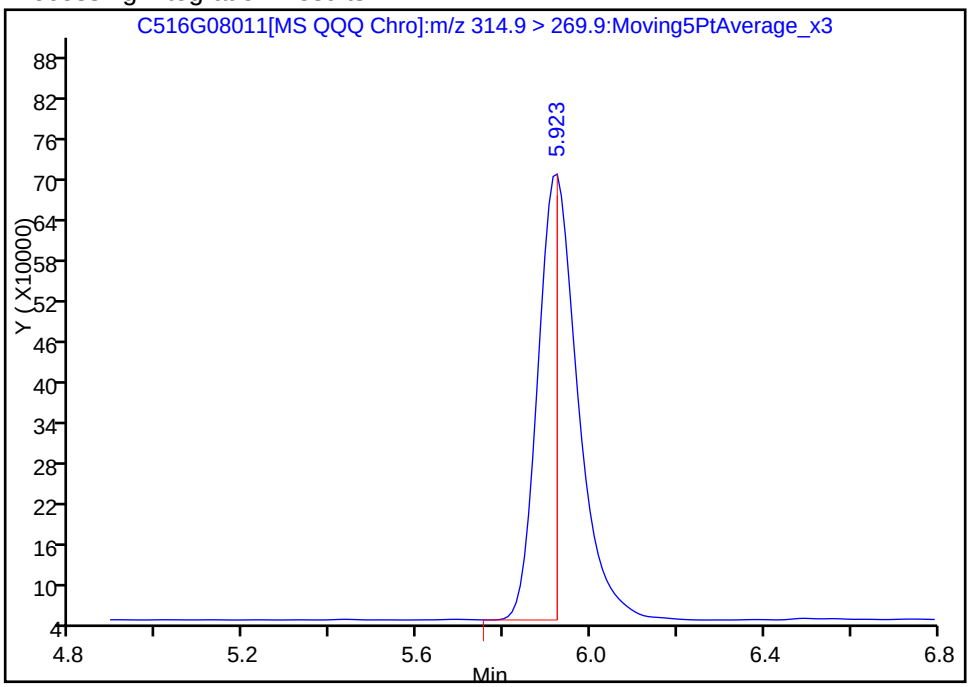
TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08011.d
Injection Date: 08-Jul-2016 13:38:09 Instrument ID: LC_LCMS5
Lims ID: 280-85171-A-2-C MSD
Client ID:
Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 6
Injection Vol: 25.0 ul Dil. Factor: 5.0000
Method: 8321_PFC Limit Group: LC - PFC
Column: Detector MS QQQ

* 6 13C2 PFHxA (IS), CAS: STL01004

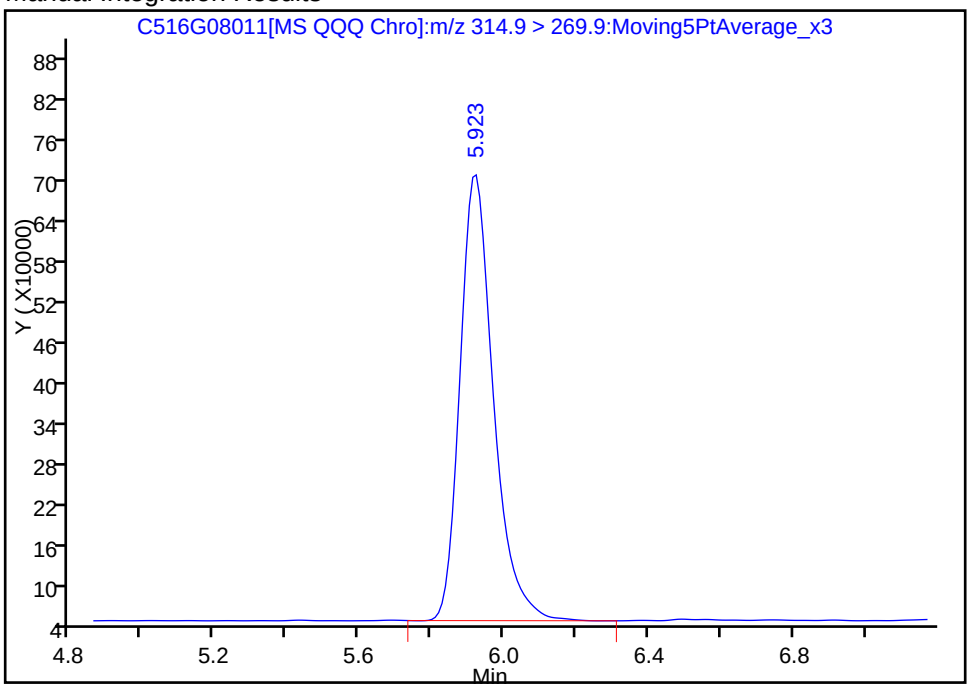
Processing Integration Results

RT: 5.92
Area: 2000980
Amount: 1.960784
Amount Units: ug/L



Manual Integration Results

RT: 5.92
Area: 4270426
Amount: 1.960784
Amount Units: ug/L



Reviewer: tinkhams, 12-Jul-2016 11:18:02
Audit Action: Manually Integrated
Audit Reason: Split Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: SB003-12.0 MSD | Lab Sample ID: 280-85171-23 MSD

Matrix: Solid | Lab File ID: PC516G08027.d

Analysis Method: DV-LC-0012 | Date Collected: 06/30/2016 14:50

Extraction Method: PFC leach | Date Extracted: 07/05/2016 14:35

Sample wt/vol: 10.11(g) | Date Analyzed: 07/08/2016 16:55

Con. Extract Vol.: 20.4(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: 7.9 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 333083 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	14.39		0.88	0.15
375-85-9	Perfluoroheptanoic acid (PFHpA)	19.56		0.88	0.13
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	17.80		0.88	0.31
375-95-1	Perfluorononanoic acid (PFNA)	17.61		0.88	0.24
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	19.27		0.88	0.15
335-67-1	Perfluorooctanoic acid (PFOA)	19.37		0.88	0.25

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	107		57-153
STL01054	13C8 PFOS	111		70-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08027.d
Lims ID: 280-85171-A-23-C MSD
Client ID: SB003-12.0
Sample Type: MSD
Inject. Date: 08-Jul-2016 16:55:02 ALS Bottle#: 0 Worklist Smp#: 22
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85171-A-23-C MSD, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 11-Jul-2016 11:13:57 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK031

First Level Reviewer: fiedlerh Date: 11-Jul-2016 11:01:10

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.209	4.219	-0.010		24140282	9.80			
2 Perfluorobutyric acid									
213.0 > 168.9	4.210	4.219	-0.009	1.000	22122520	8.38			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.251	5.223	0.028	0.898	19181024	8.87			
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.364	5.336	0.028	0.853	8824230	6.57			
298.9 > 98.9	5.364	5.336	0.028	0.853	2699264		3.27(1.80-3.35)		
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.364	5.336	0.028	0.853	8824230	6.57			
298.9 > 98.9	5.364	5.336	0.028	0.853	2699264		3.27(2.57-2.57)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.847	5.809	0.038		18016322	9.80			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.847	5.809	0.038	1.000	15014670	8.64			
313.0 > 118.6	5.838	5.809	0.029	0.998	503916		29.80(34.05-63.23)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.282	6.235	0.047	0.947	22508834	8.93			
363.0 > 168.9	6.282	6.235	0.047	0.947	6116218		3.68(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.291	6.244	0.047		2386518	9.27			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.282	6.244	0.038	0.999	8102745	8.12			R
398.9 > 98.9	6.282	6.244	0.038	0.999	2702261		3.00(1.30-2.41)		
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.282	6.244	0.038	0.999	8102745	8.12			
398.9 > 98.9	6.282	6.244	0.038	0.999	2702261		3.00(1.85-1.85)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.612	6.583	0.029	0.959	9338701	9.14			
449.0 > 98.9	6.612	6.583	0.029	0.959	2916219		3.20(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.612	6.583	0.029	0.959	9338701	9.14			
449.0 > 98.9	6.612	6.583	0.029	0.959	2916219		3.20(0.00-0.00)		
16 Perfluorooctanoic acid									
413.0 > 368.9	6.632	6.584	0.048	1.000	26712989	8.84			
413.0 > 169.0	6.622	6.584	0.038	0.999	8244175		3.24(2.86-5.31)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.631	6.593	0.038	1.000	24014144	10.3			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.631	6.593	0.038		28401443	9.80			
$ 18 13C8 PFOS									
506.9 > 80.0	6.894	6.865	0.029	1.000	5226463	10.1			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.894	6.866	0.028		7901274	9.37			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.904	6.866	0.038	1.001	8696941	8.80			R
498.9 > 98.9	6.895	6.866	0.029	1.000	3094887		2.81(1.31-2.43)		
20 Perfluorononanoic acid									
463.0 > 418.9	6.924	6.886	0.038	1.000	21012963	8.04			
463.0 > 218.9	6.924	6.886	0.038	1.000	3057188		6.87(5.59-10.38)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.924	6.895	0.029		22827306	9.80			
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.168	7.149	0.019		23440175	9.80			
23 Perfluorodecanoic acid									R
513.0 > 468.9	7.168	7.149	0.019	1.000	21793589	9.04			R
513.0 > 219.0	7.168	7.149	0.019	1.000	2154000		10.12(10.49-19.48)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.356	7.337	0.019	1.067	8080769	7.74			
598.9 > 99.0	7.356	7.337	0.019	1.067	2685577		3.01(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.356	7.337	0.019	1.067	8080769	7.74			
598.9 > 99.0	7.356	7.337	0.019	1.067	2685577		3.01(2.84-2.84)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.385	7.366	0.019		14400975	9.80			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.385	7.366	0.019	1.000	18158252	8.72			R
563.0 > 268.9	7.385	7.366	0.019	1.000	2306539		7.87(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.564	7.555	0.010		29495797	9.80			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.564	7.555	0.009	1.000	26376528	8.52			
613.0 > 168.9	7.564	7.555	0.009	1.000	3324227		7.93(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.595	7.614	-0.019		25029786	9.80			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.596	7.615	-0.019	1.000	24288509	8.76			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.725	7.725	0.0	1.021	25504301	9.11			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.857	7.866	-0.009	1.039	17753471	9.99			
712.9 > 169.0	7.857	7.866	-0.009	1.039	2645608		6.71(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Report Date: 11-Jul-2016 11:14:14 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160711-48692.b\PC516G08027.d

Injection Date: 08-Jul-2016 16:55:02 Instrument ID: LC_LCMS5

Lims ID: 280-85171-A-23-C MSD

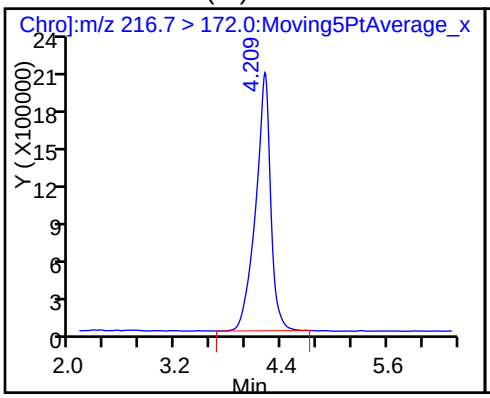
Client ID: SB003-12.0

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 22

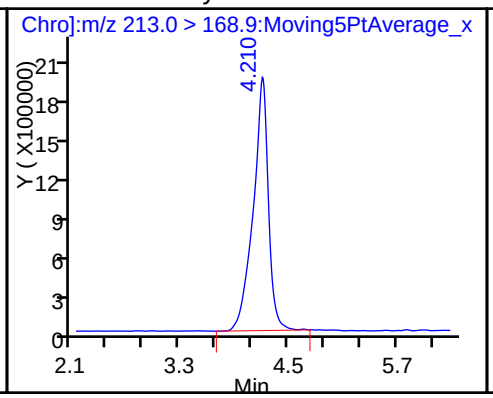
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

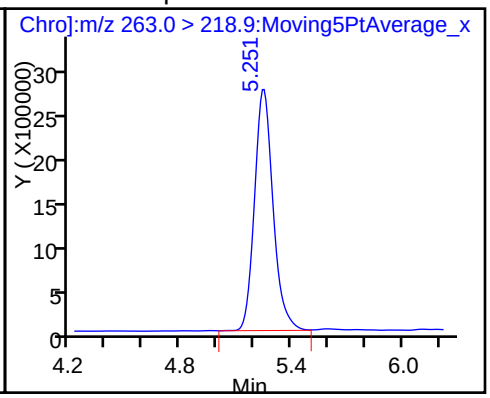
* 1 13C4 PFBA (IS)



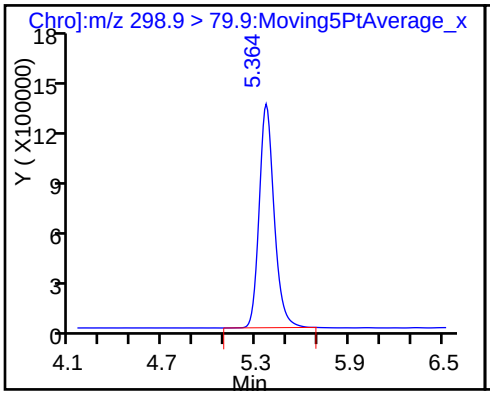
2 Perfluorobutyric acid



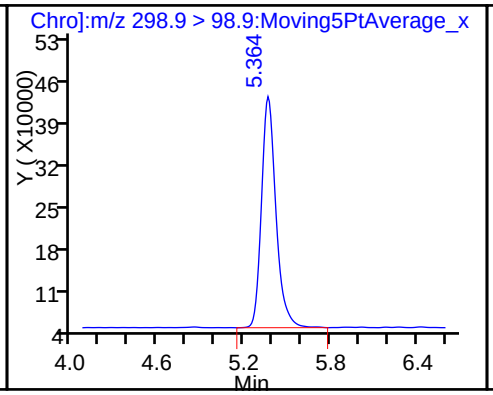
3 Perfluoropentanoic acid



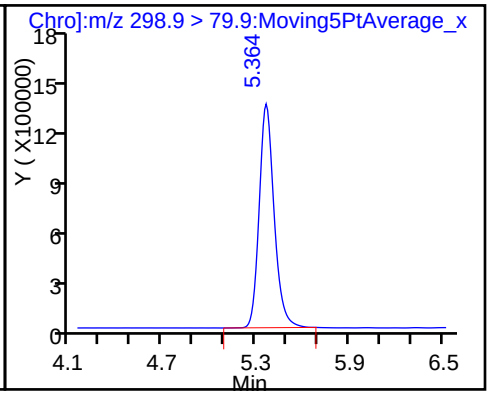
4 Perfluorobutane Sulfonate



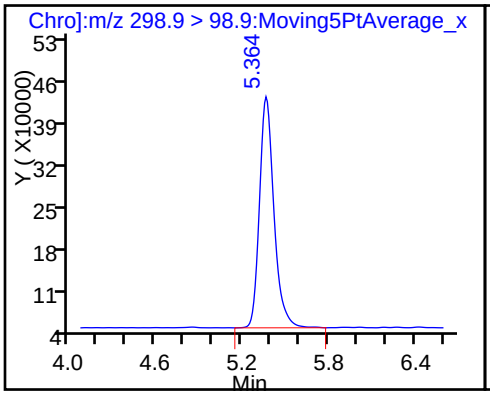
4 Perfluorobutane Sulfonate



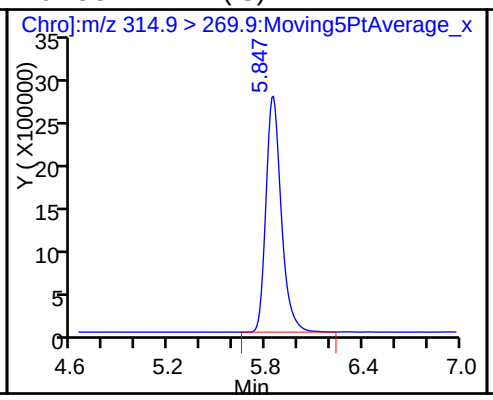
5 Perfluorobutanesulfonic acid



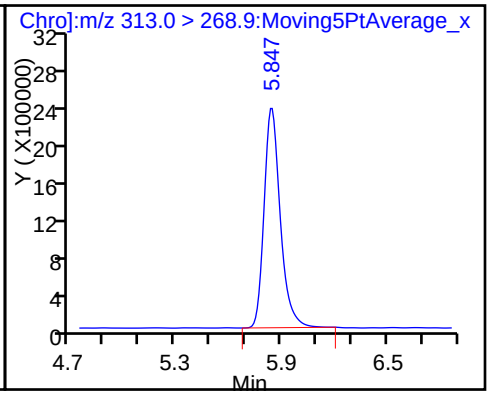
5 Perfluorobutanesulfonic acid



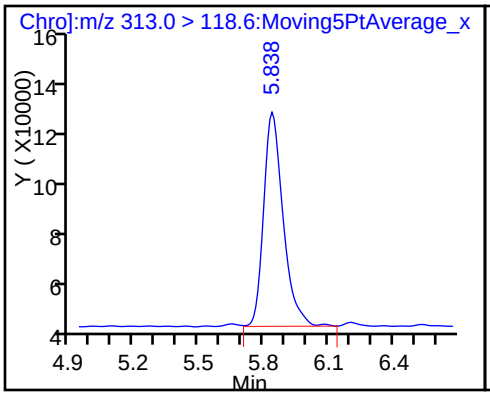
* 6 13C2 PFHxA (IS)



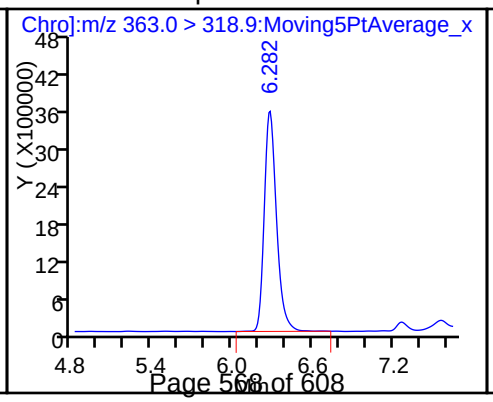
7 Perfluorohexanoic acid



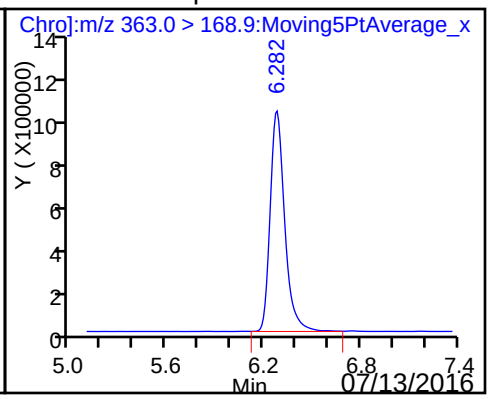
7 Perfluorohexanoic acid



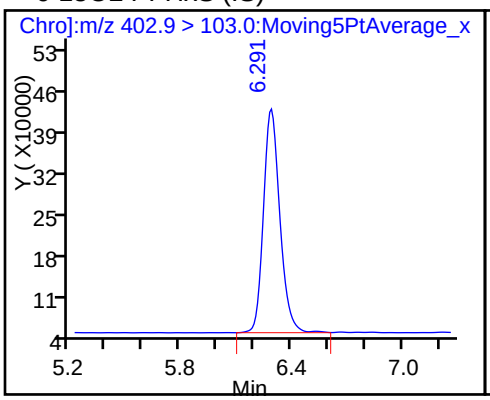
8 Perfluoroheptanoic acid



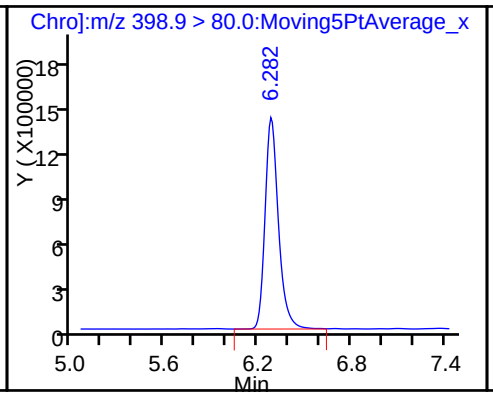
8 Perfluoroheptanoic acid



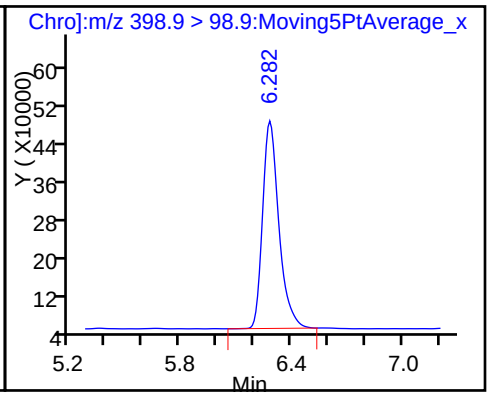
* 9 18O2 PFHxS (IS)



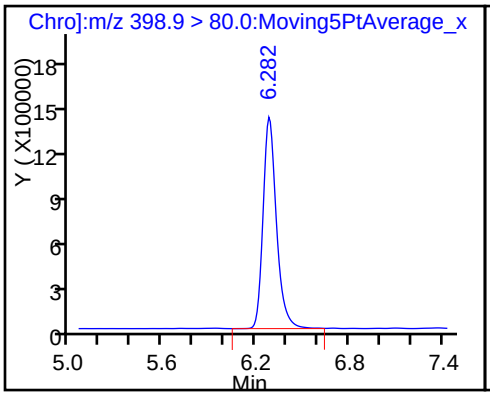
10 Perfluorohexane Sulfonate



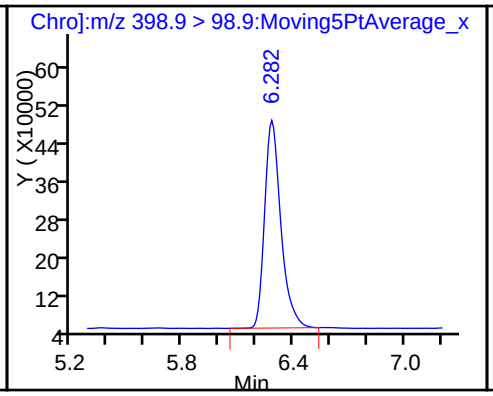
10 Perfluorohexane Sulfonate



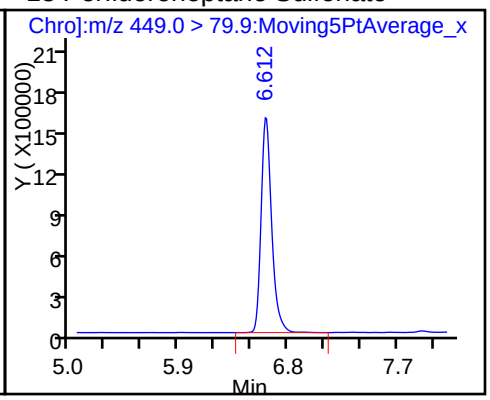
11 Perfluorohexanesulfonic acid



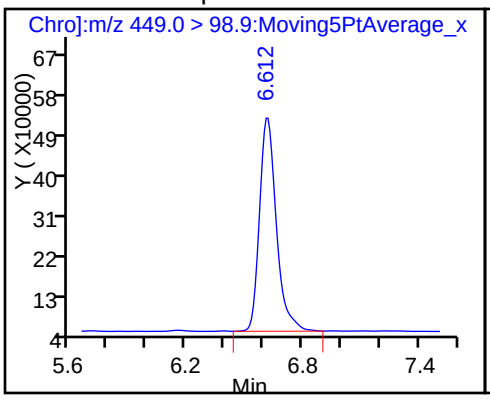
11 Perfluorohexanesulfonic acid



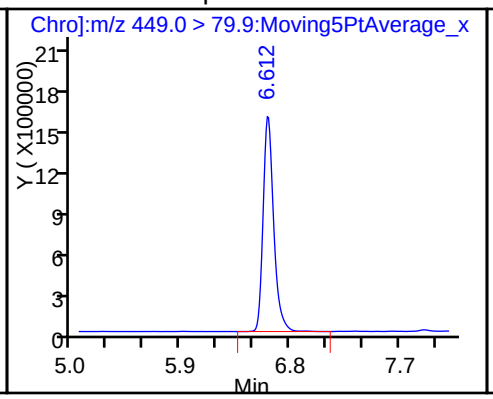
13 Perfluoroheptane Sulfonate



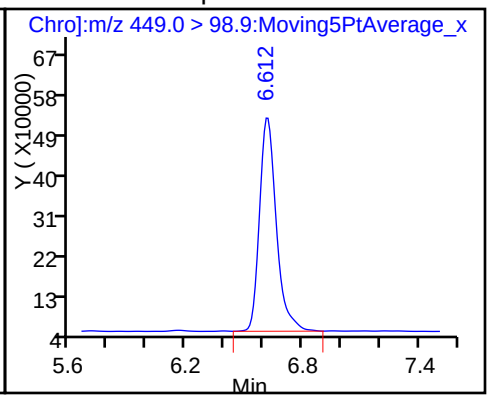
13 Perfluoroheptane Sulfonate



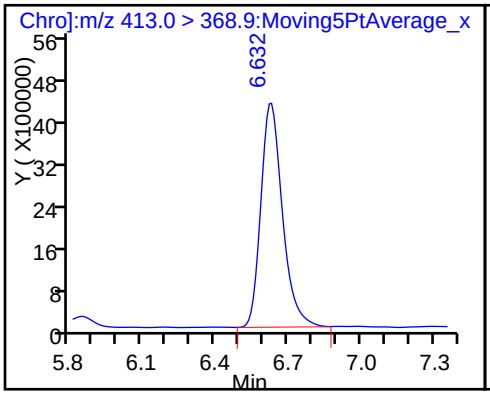
12 Perfluoroheptanesulfonic Acid



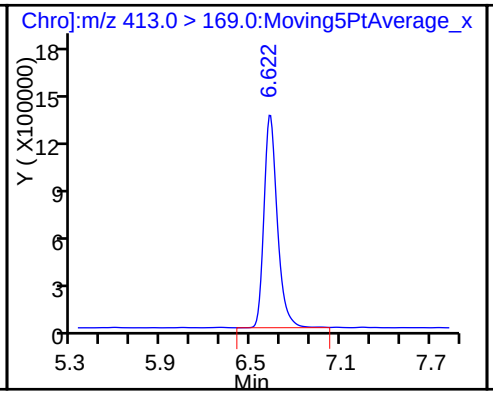
12 Perfluoroheptanesulfonic Acid



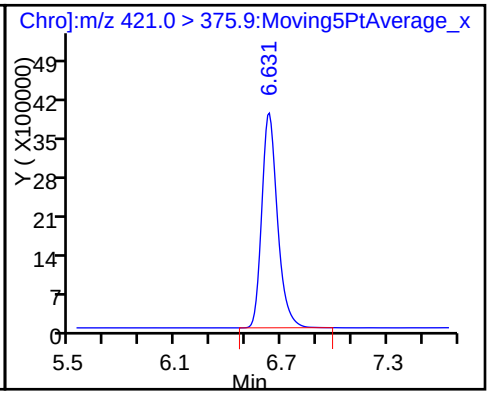
16 Perfluorooctanoic acid



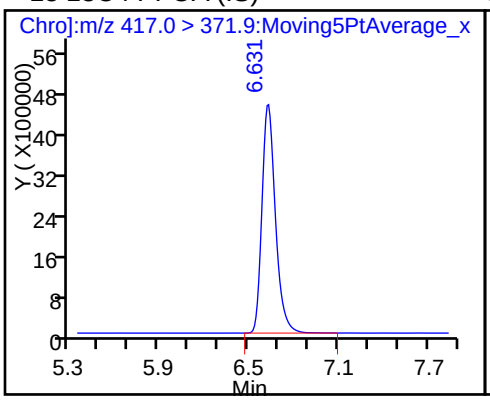
16 Perfluorooctanoic acid



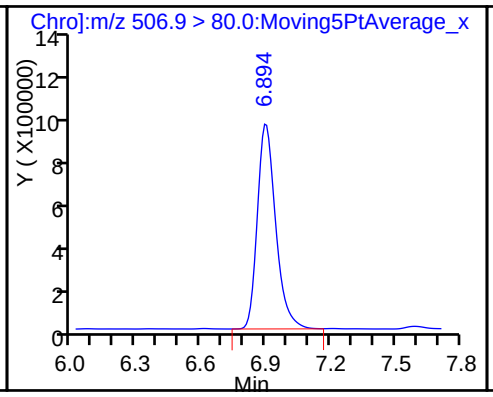
$ 14 13C8 PFOA



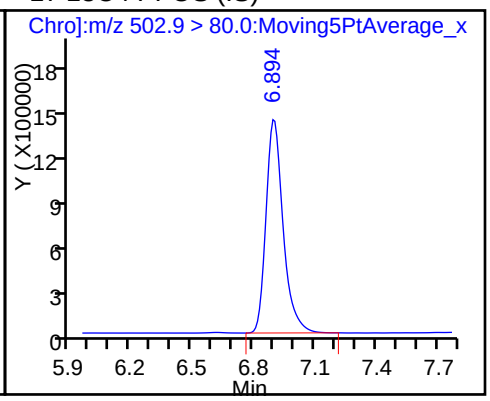
* 15 13C4 PFOA (IS)



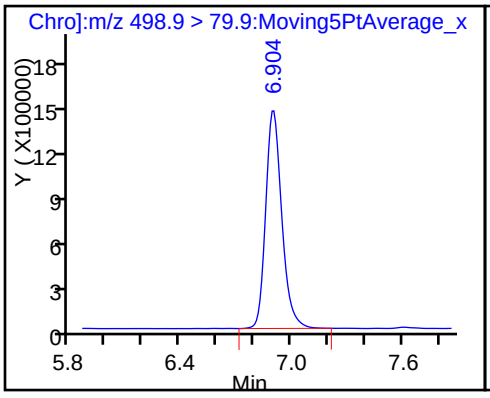
$ 18 13C8 PFOS



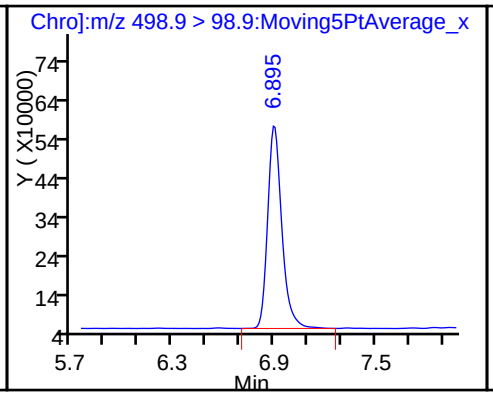
* 17 13C4 PFOS (IS)



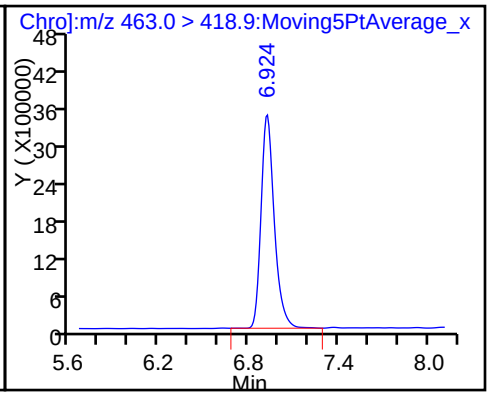
19 Perfluorooctane sulfonic acid



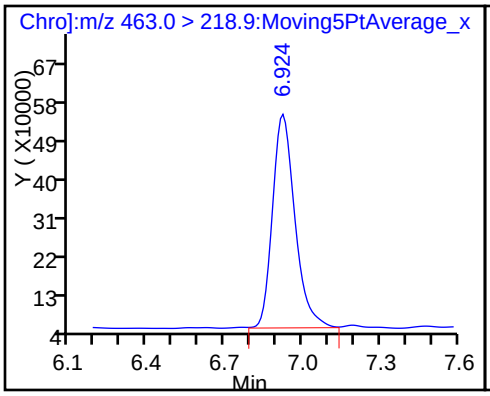
19 Perfluorooctane sulfonic acid



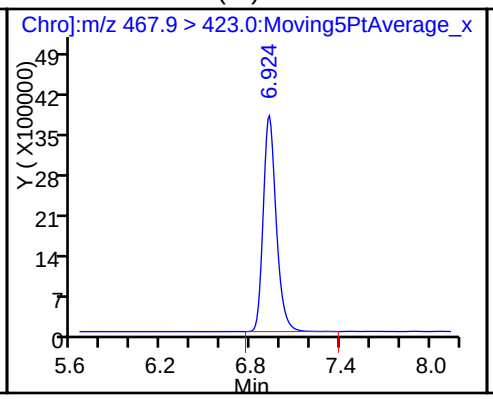
20 Perfluorononanoic acid



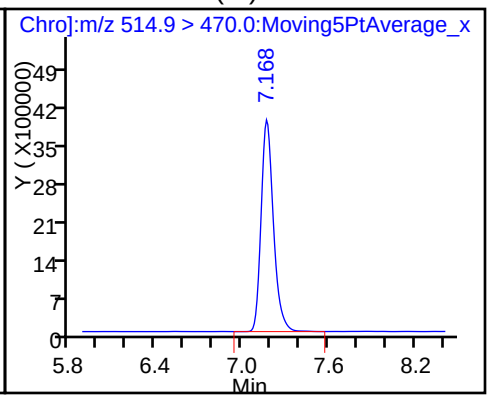
20 Perfluorononanoic acid



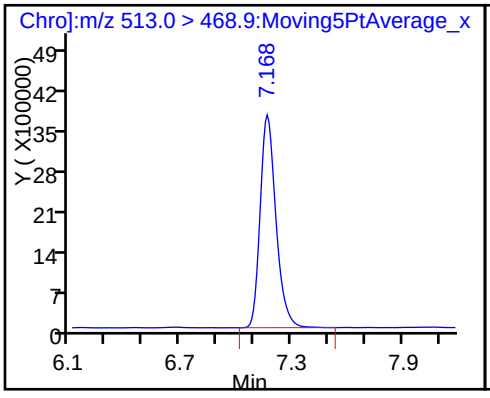
* 21 13C5 PFNA (IS)



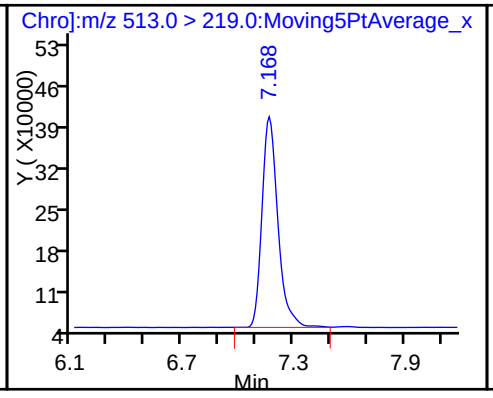
* 22 13C2 PFDA (IS)



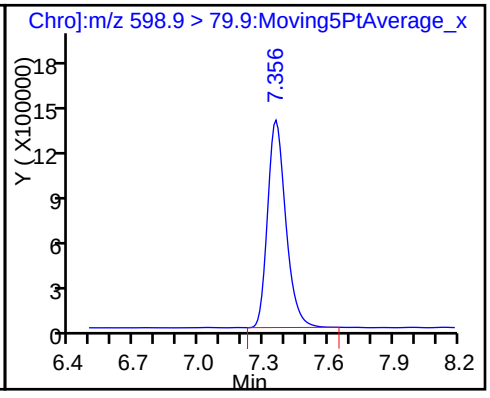
23 Perfluorodecanoic acid



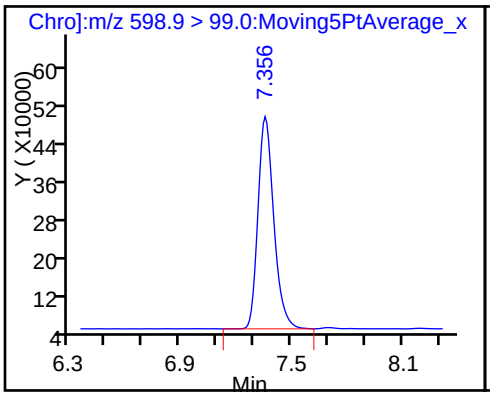
23 Perfluorodecanoic acid



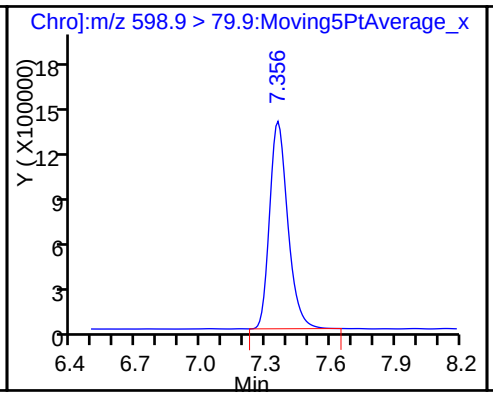
25 Perfluorodecane Sulfonate



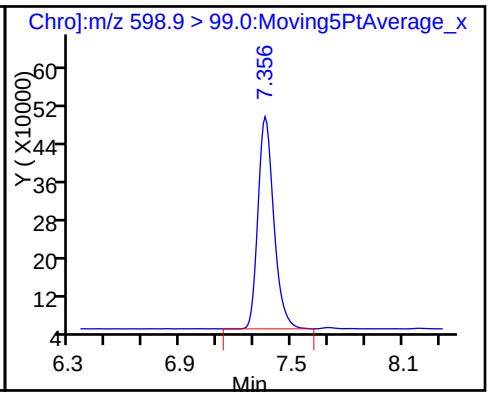
25 Perfluorodecane Sulfonate



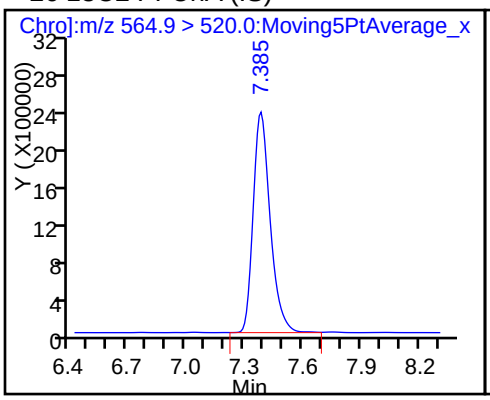
24 Perfluorodecane Sulfonic acid



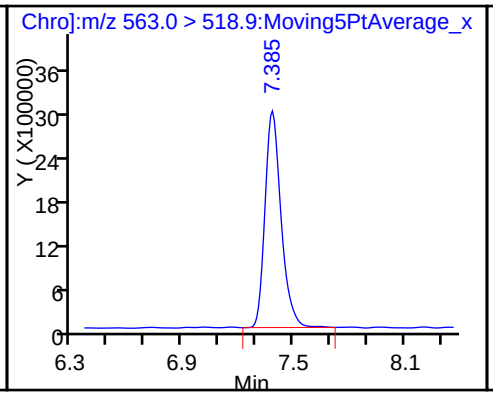
24 Perfluorodecane Sulfonic acid



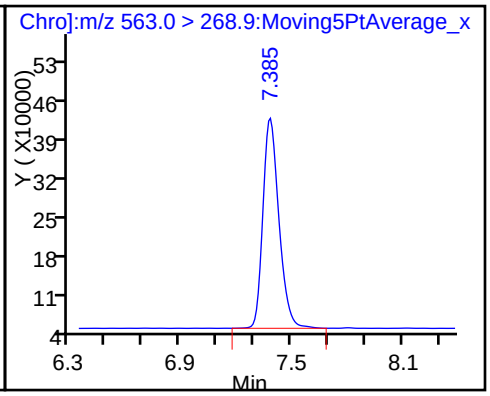
* 26 13C2 PFUnA (IS)



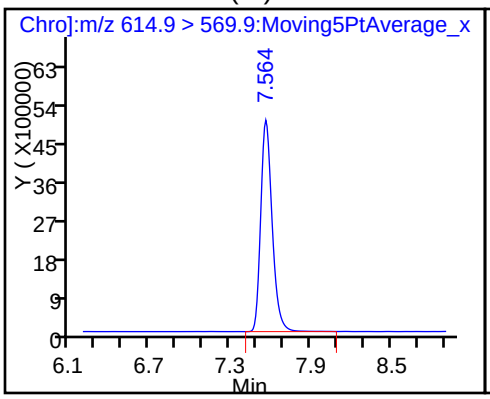
27 Perfluoroundecanoic acid



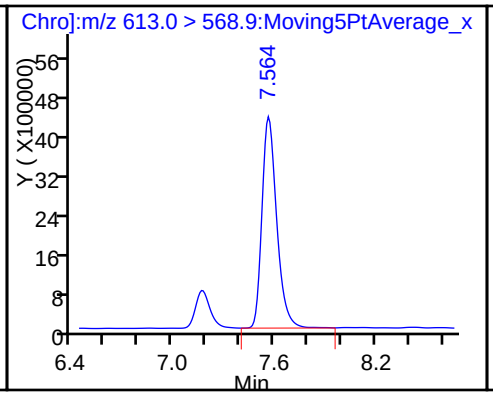
27 Perfluoroundecanoic acid



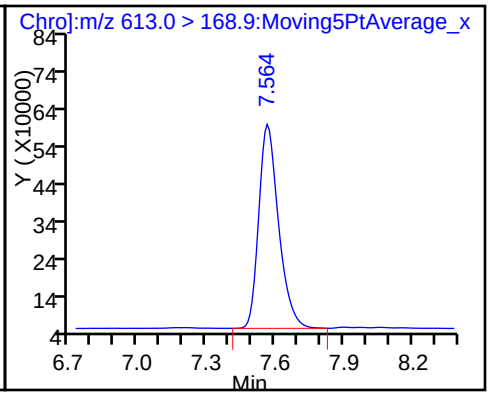
* 28 13C2 PFDoA (IS)



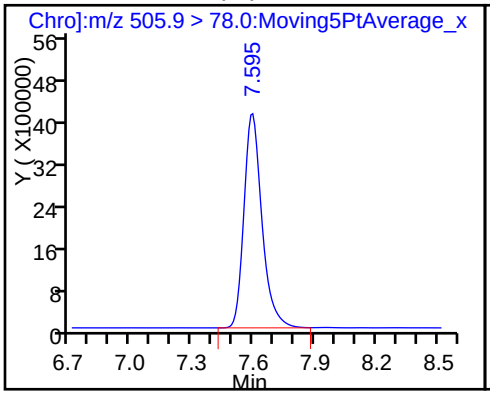
29 Perfluorododecanoic acid



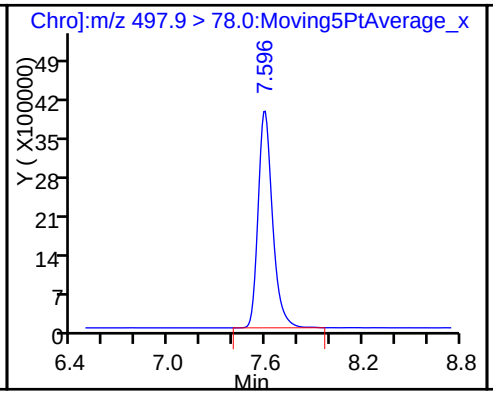
29 Perfluorododecanoic acid



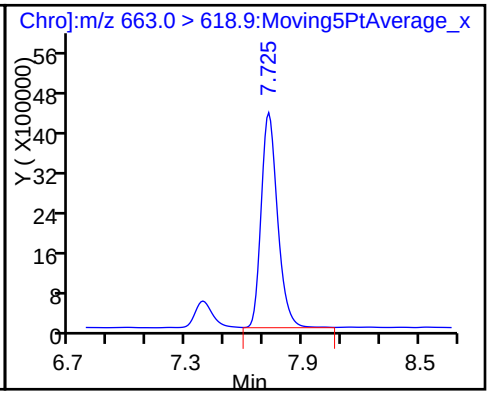
* 31 13C8 FOSA (IS)



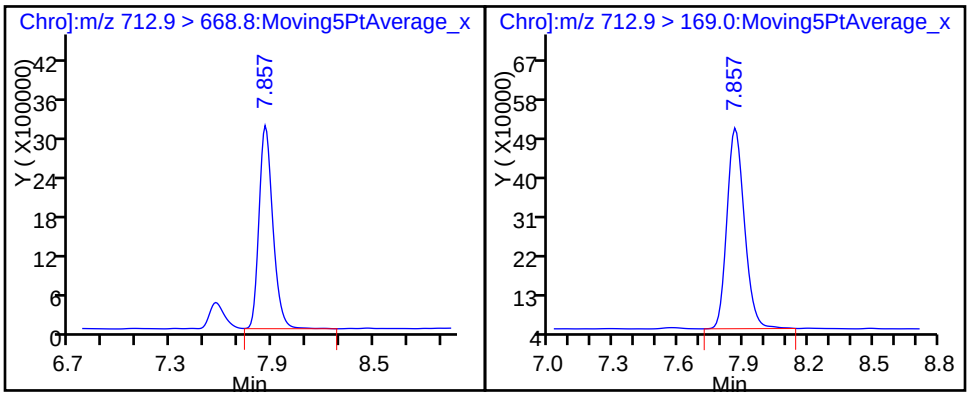
32 Perfluorooctane Sulfonamide



30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85171-1

SDG No.:

Client Sample ID: | Lab Sample ID: 280-85194-G-1-A MSD

Matrix: Water | Lab File ID: PC516G07065.d

Analysis Method: DV-LC-0012 | Date Collected: 06/30/2016 08:30

Extraction Method: 3535 | Date Extracted: 07/05/2016 12:12

Sample wt/vol: 276.8(mL) | Date Analyzed: 07/07/2016 19:23

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 332793 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.387		0.018	0.0074
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.579		0.027	0.012
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	1.246		0.027	0.0063
375-95-1	Perfluorononanoic acid (PFNA)	0.231		0.036	0.016
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.460		0.027	0.012
335-67-1	Perfluorooctanoic acid (PFOA)	1.375		0.018	0.0088

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	100		60-155
STL01054	13C8 PFOS	116		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07065.d
Lims ID: 280-85194-G-1-A MSD
Client ID:
Sample Type: MSD
Inject. Date: 07-Jul-2016 19:23:11 ALS Bottle#: 0 Worklist Smp#: 30
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85194-G-1-A MSD, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 08-Jul-2016 09:16:52 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK002

First Level Reviewer: fiedlerh Date: 08-Jul-2016 08:25:32

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0		4.522				0			
2 Perfluorobutyric acid									
213.0 > 168.9		4.522				ND			
3 Perfluoropentanoic acid									
263.0 > 218.9		5.488				ND			
4 Perfluorobutane Sulfonate									M
298.9 > 79.9	5.469	5.592	-0.123	0.865	21090248	21.5			M
298.9 > 98.9	5.469	5.592	-0.123	0.865	6468759		3.26(1.80-3.35)		
5 Perfluorobutanesulfonic acid									M
298.9 > 79.9	5.469	5.592	-0.123	0.865	21090248	21.5			M
298.9 > 98.9	5.469	5.592	-0.123	0.865	6468759		3.26(2.57-2.57)		
* 6 13C2 PFHxA (IS)									s
314.9 > 269.9	5.904	6.027	-0.123		2153683	10.0			
7 Perfluorohexanoic acid									M
313.0 > 268.9	5.904	6.027	-0.123	1.000	16540539	81.4			M
313.0 > 118.6	5.913	6.027	-0.114	1.002	461516		35.84(34.05-63.23)		
11 Perfluorohexanesulfonic acid									M
398.9 > 80.0	6.320	6.433	-0.113	1.000	49826982	69.0			M
398.9 > 98.9	6.320	6.433	-0.113	1.000	18425142		2.70(1.85-1.85)		
10 Perfluorohexane Sulfonate									RM
398.9 > 80.0	6.320	6.433	-0.113	1.000	49826982	69.0			RM
398.9 > 98.9	6.320	6.433	-0.113	1.000	18425142		2.70(1.30-2.41)		
8 Perfluoroheptanoic acid									M
363.0 > 318.9	6.320	6.434	-0.114	0.949	37324880	32.1			M
363.0 > 168.9	6.311	6.434	-0.123	0.948	9697308		3.85(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.319	6.433	-0.114		1779406	9.46			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.650	6.763	-0.113	0.958	9127493	11.6			
449.0 > 98.9	6.650	6.763	-0.113	0.958	2558536		3.57(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.650	6.763	-0.113	0.958	9127493	11.6			
449.0 > 98.9	6.650	6.763	-0.113	0.958	2558536		3.57(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.660	6.773	-0.113	1.000	10794770	9.95			
* 15 13C4 PFOA (IS)									s
417.0 > 371.9	6.660	6.773	-0.113		13415880	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.660	6.774	-0.114	1.000	105729282	76.1			
413.0 > 169.0	6.660	6.774	-0.114	1.000	33062608		3.20(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.932	7.036	-0.104	0.999	4401805	11.1			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.942	7.036	-0.094		6203714	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.932	7.037	-0.105	0.999	61068666	80.8			R
498.9 > 98.9	6.932	7.037	-0.105	0.999	17880818		3.42(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.962	7.056	-0.094		11566060	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.962	7.056	-0.094	1.000	16561017	12.8			
463.0 > 218.9	6.962	7.056	-0.094	1.000	2638017		6.28(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.206	7.301	-0.095		16394918	10.0			
23 Perfluorodecanoic acid									R
513.0 > 468.9	7.206	7.301	-0.095	1.000	17773798	10.8			R
513.0 > 219.0	7.206	7.301	-0.095	1.000	1760081		10.10(10.49-19.48)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.394	7.479	-0.085	1.065	4167089	5.17			
598.9 > 99.0	7.394	7.479	-0.085	1.065	1133124		3.68(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.394	7.479	-0.085	1.065	4167089	5.17			
598.9 > 99.0	7.394	7.479	-0.085	1.065	1133124		3.68(2.84-2.84)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.423	7.508	-0.085		8624164	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.423	7.508	-0.085	1.000	10541094	8.62			R
563.0 > 268.9	7.423	7.508	-0.085	1.000	1498622		7.03(3.47-6.45)		
* 28 13C2 PFDoA (IS)									s
614.9 > 569.9	7.611	7.687	-0.076		8650682	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.612	7.687	-0.075	1.000	8514044	9.58			
613.0 > 168.9	7.612	7.687	-0.075	1.000	1113611		7.65(5.96-11.06)		
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.680	7.728	-0.048		583983	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.681	7.729	-0.048	1.000	617517	9.74			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.763	7.848	-0.085	1.020	3144675	3.86			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.904	7.980	-0.076	1.038	1634938	3.19			
712.9 > 169.0	7.895	7.980	-0.085	1.037	226249		7.23(8.28-8.28)		

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

R - Failed Signal Ratio Test

s - Failed ISTD Recovery Test

Review Flags

M - Manually Integrated

Report Date: 08-Jul-2016 09:17:20 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07065.d

Injection Date: 07-Jul-2016 19:23:11 Instrument ID: LC_LCMS5

Lims ID: 280-85194-G-1-A MSD

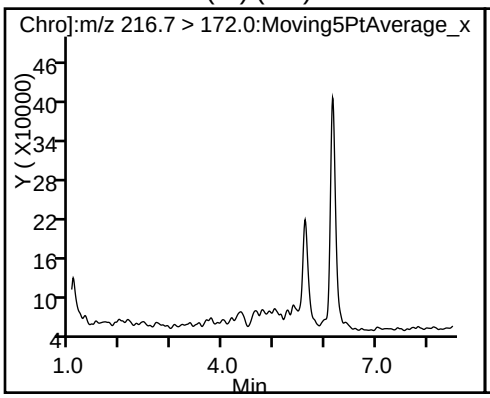
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 30

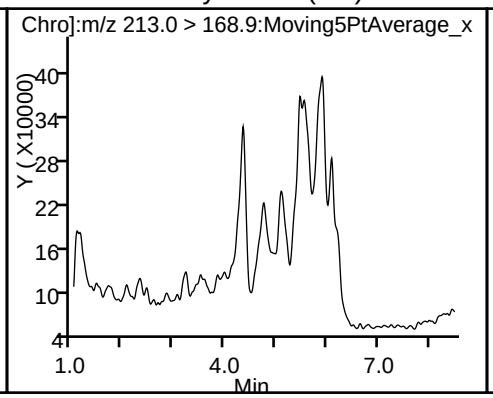
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

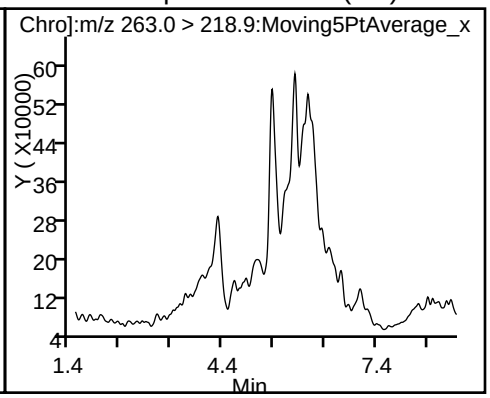
* 1 13C4 PFBA (IS) (ND)



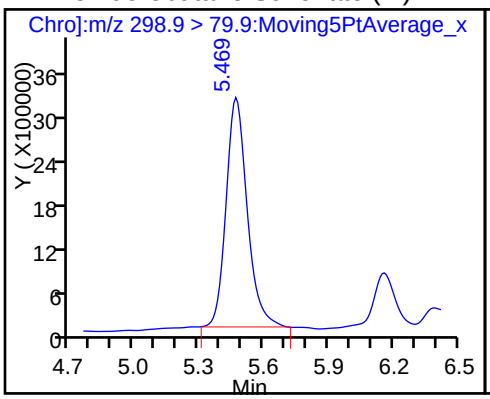
2 Perfluorobutyric acid (ND)



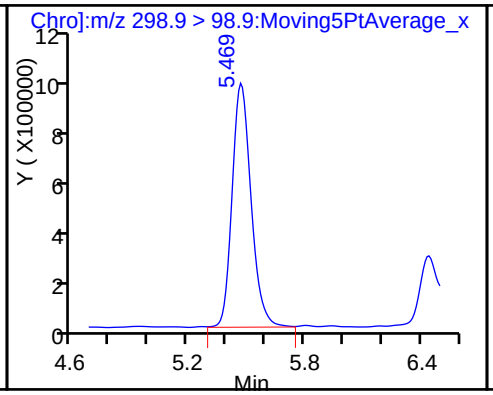
3 Perfluoropentanoic acid (ND)



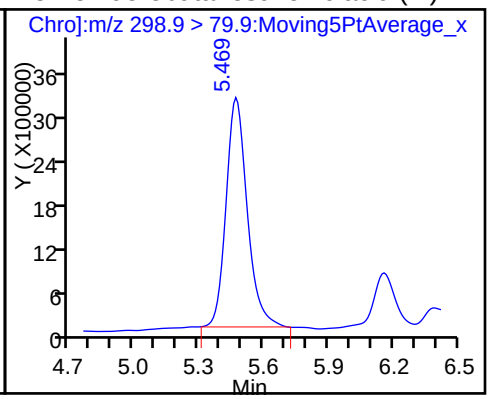
4 Perfluorobutane Sulfonate (M)



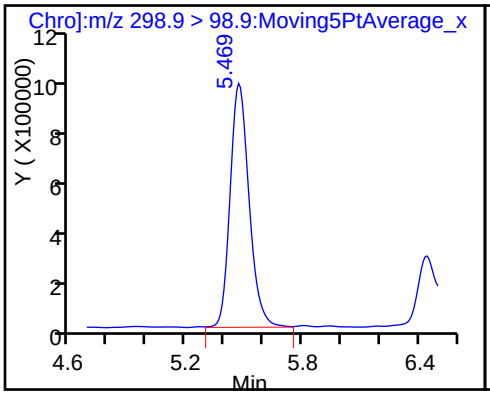
4 Perfluorobutane Sulfonate



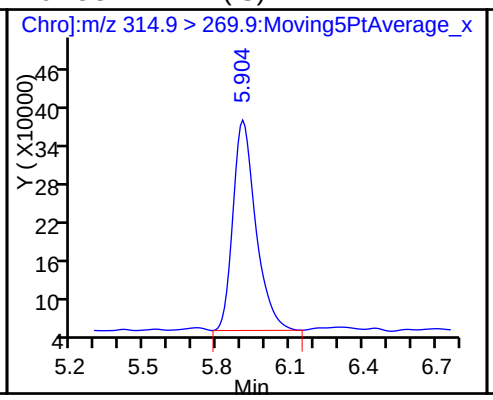
5 Perfluorobutanesulfonic acid (M)



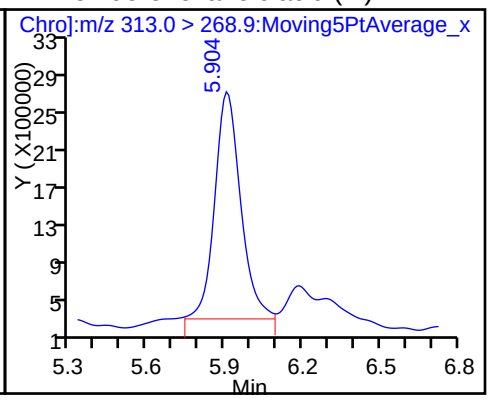
5 Perfluorobutanesulfonic acid



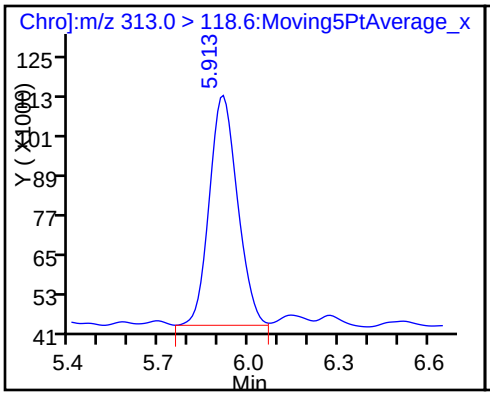
* 6 13C2 PFHxA (IS)



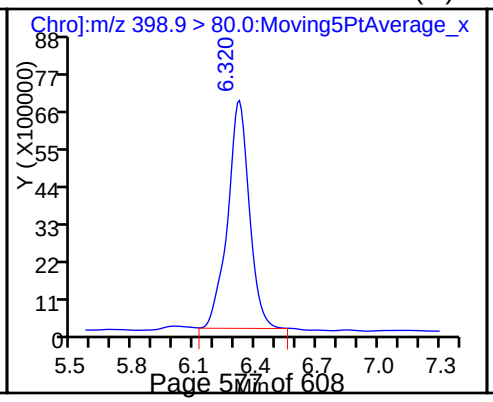
7 Perfluorohexanoic acid (M)



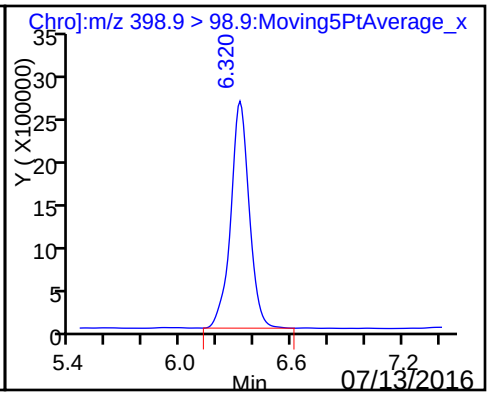
7 Perfluorohexanoic acid



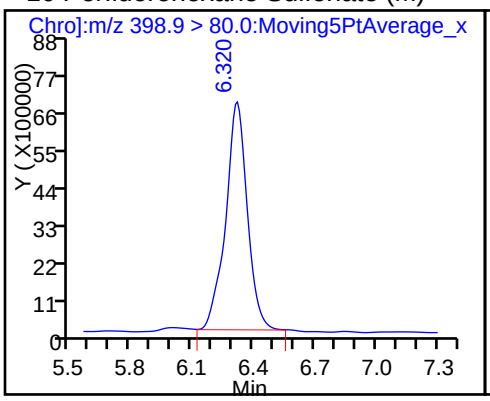
11 Perfluorohexanesulfonic acid (M)



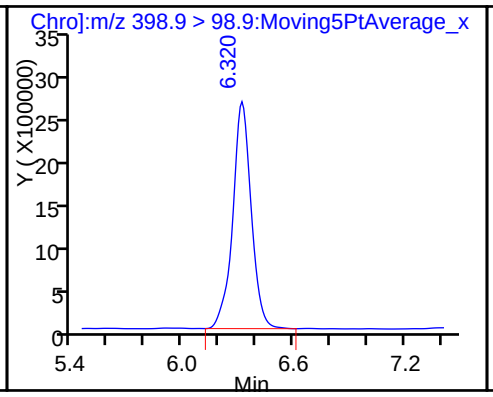
11 Perfluorohexanesulfonic acid



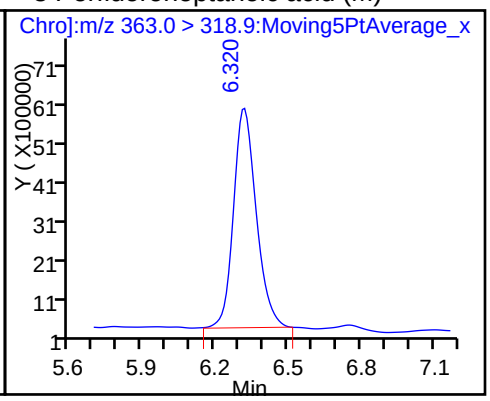
10 Perfluorohexane Sulfonate (M)



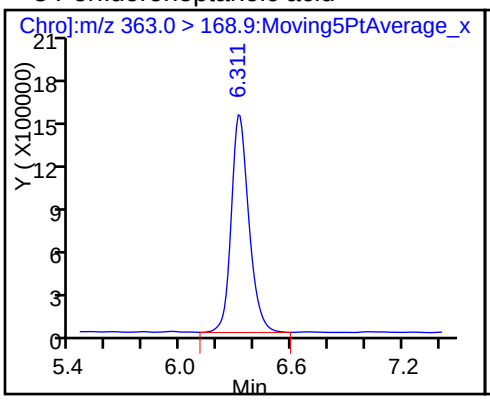
10 Perfluorohexane Sulfonate



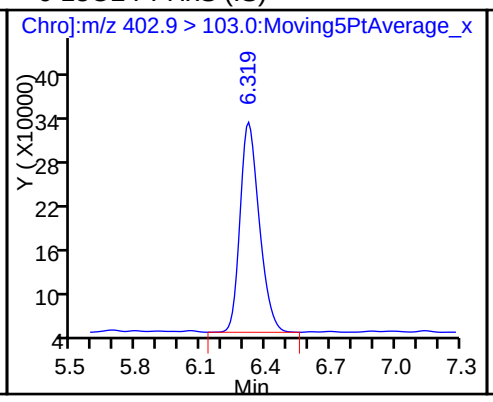
8 Perfluoroheptanoic acid (M)



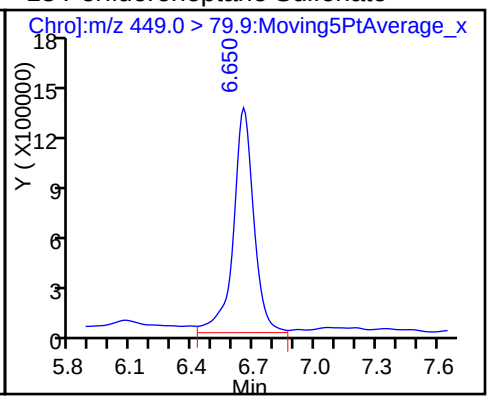
8 Perfluoroheptanoic acid



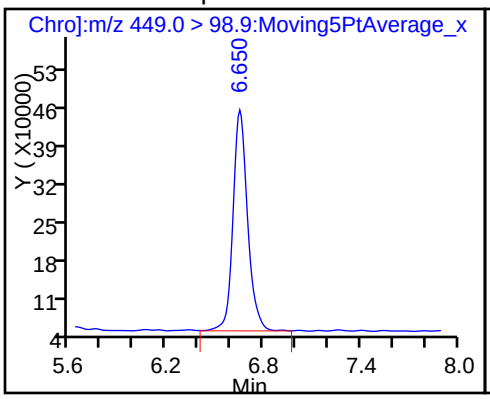
* 9 18O2 PFHxS (IS)



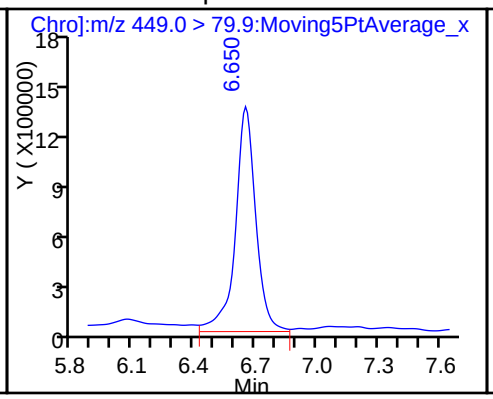
13 Perfluoroheptane Sulfonate



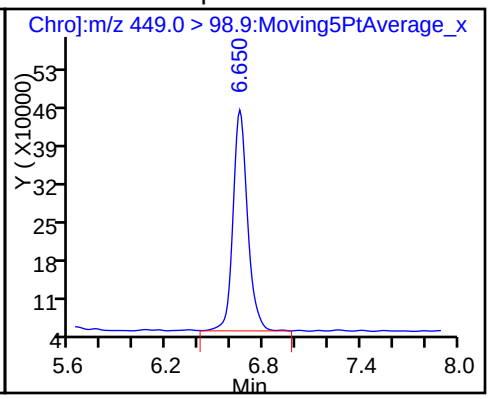
13 Perfluoroheptane Sulfonate



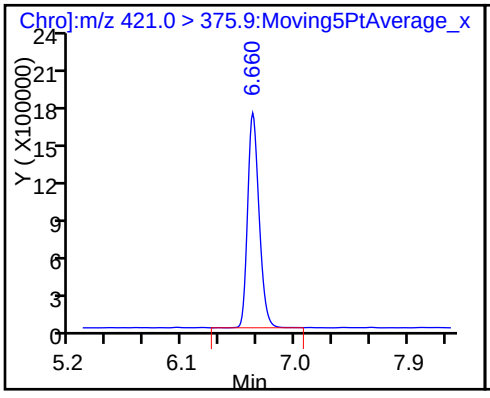
12 Perfluoroheptanesulfonic Acid



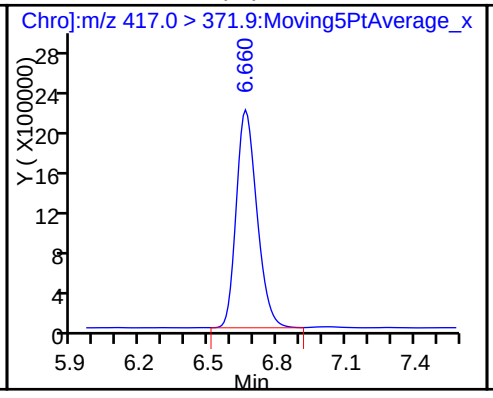
12 Perfluoroheptanesulfonic Acid



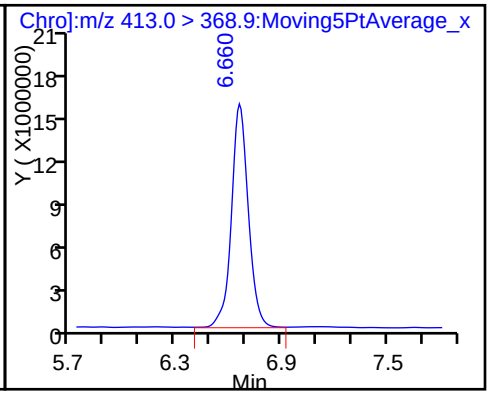
$ 14 13C8 PFOA



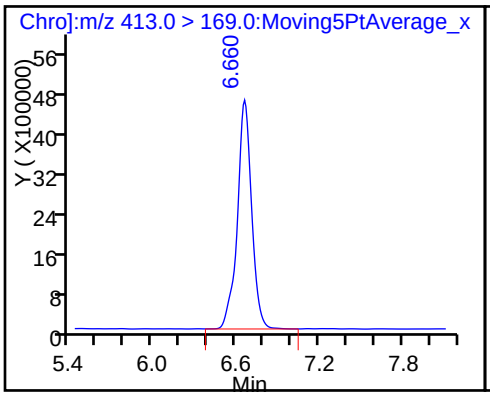
* 15 13C4 PFOA (IS)



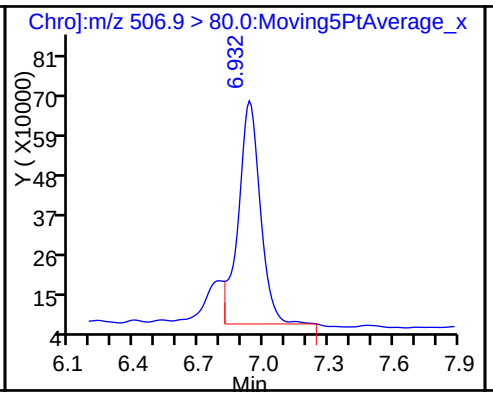
16 Perfluorooctanoic acid



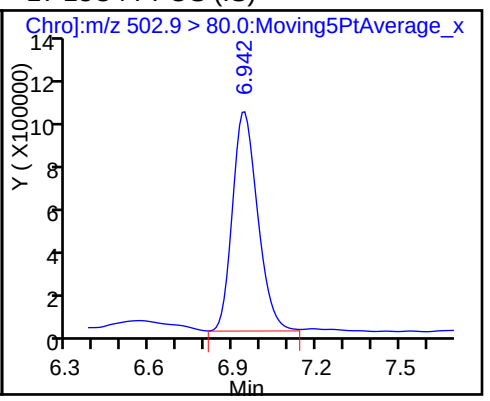
16 Perfluorooctanoic acid



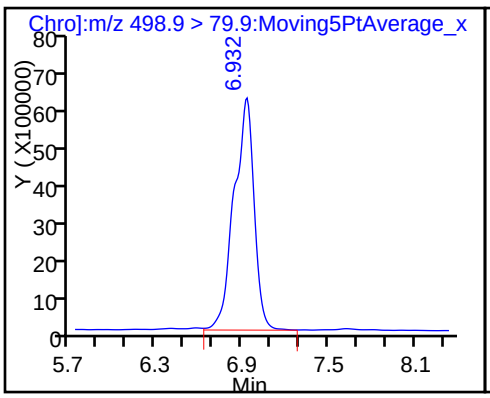
$ 18 13C8 PFOS



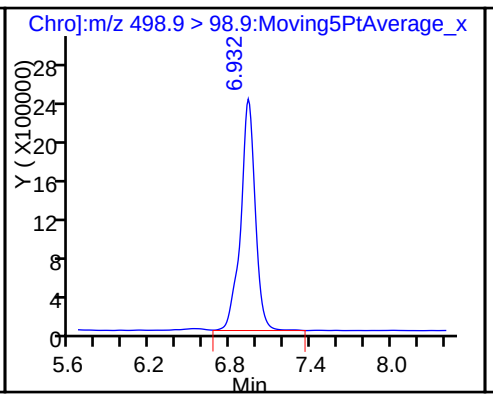
* 17 13C4 PFOS (IS)



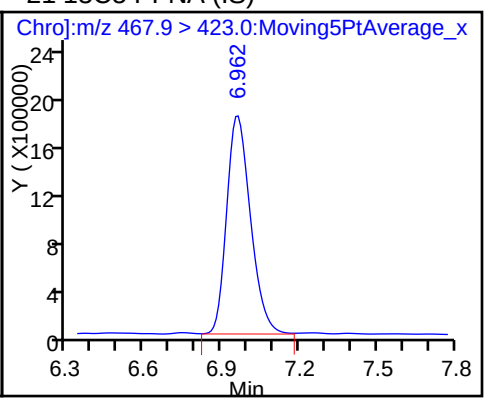
19 Perfluorooctane sulfonic acid



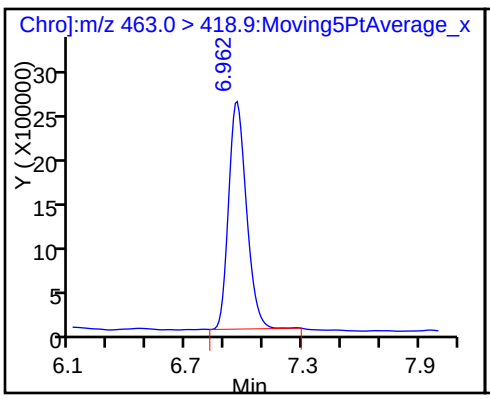
19 Perfluorooctane sulfonic acid



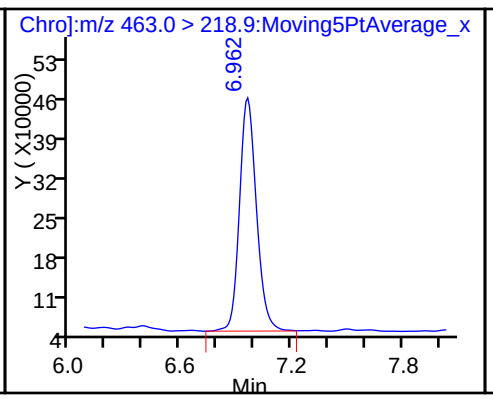
* 21 13C5 PFNA (IS)



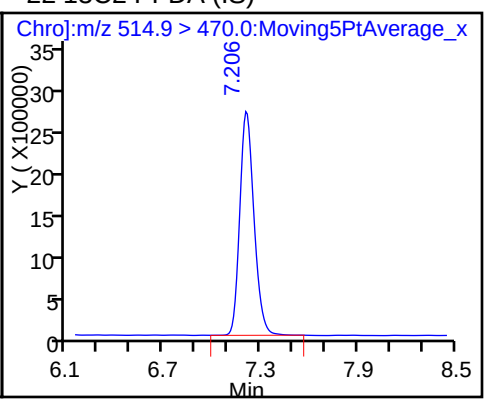
20 Perfluorononanoic acid



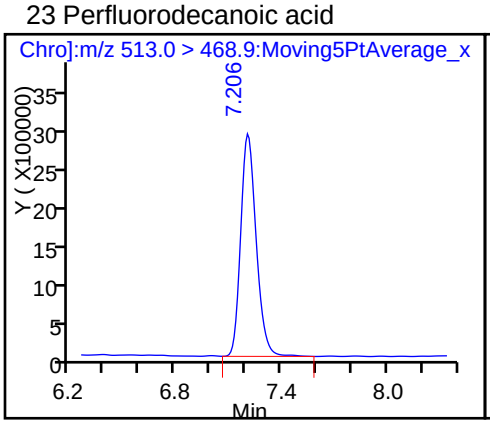
20 Perfluorononanoic acid



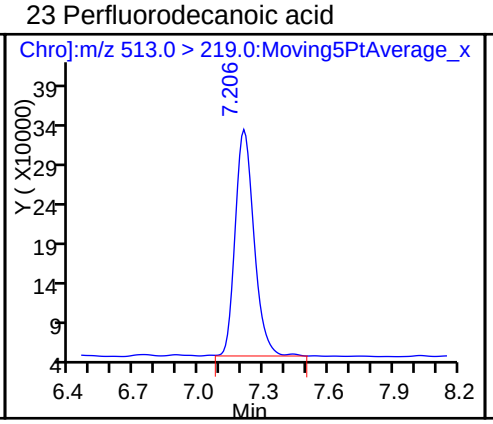
* 22 13C2 PFDA (IS)



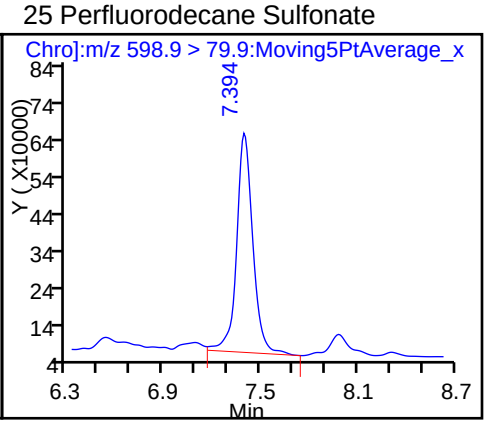
23 Perfluorodecanoic acid



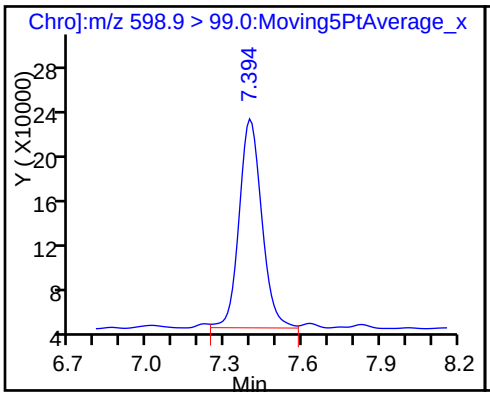
23 Perfluorodecanoic acid



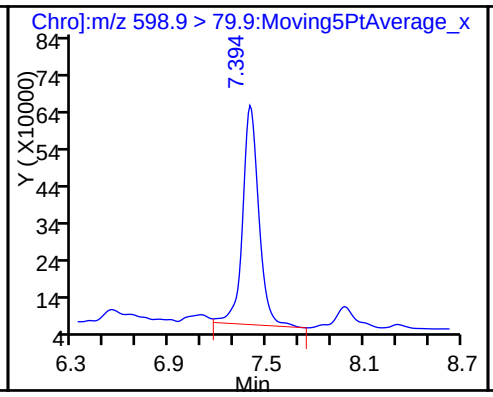
25 Perfluorodecane Sulfonate



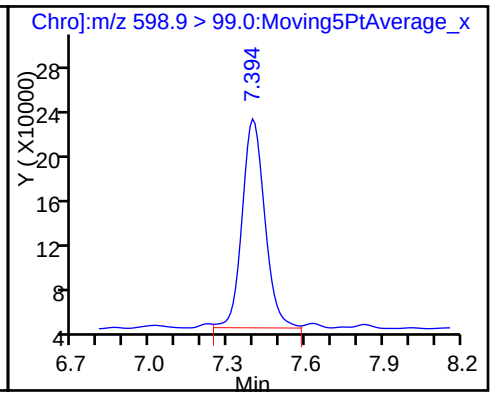
25 Perfluorodecane Sulfonate



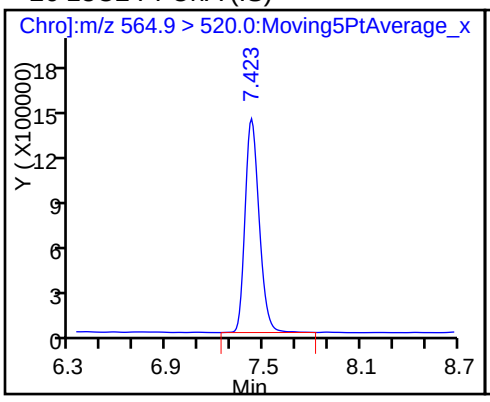
24 Perfluorodecane Sulfonic acid



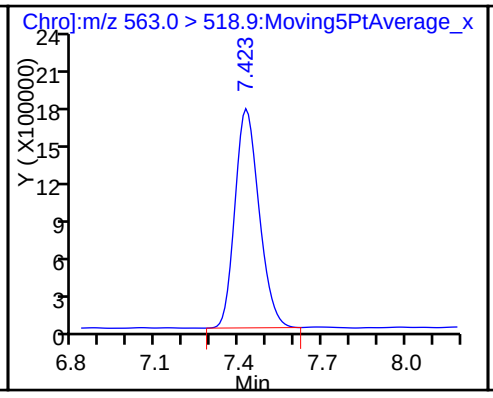
24 Perfluorodecane Sulfonic acid



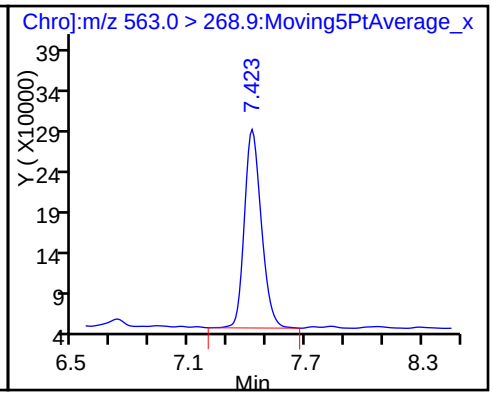
* 26 13C2 PFUnA (IS)



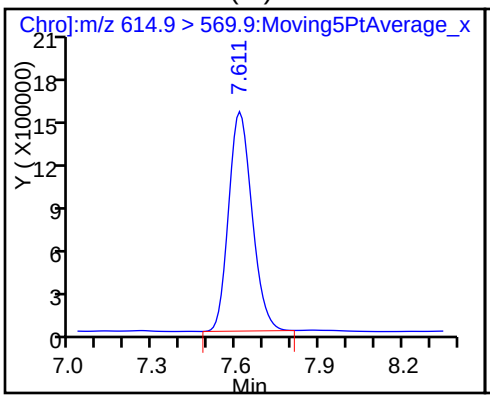
27 Perfluoroundecanoic acid



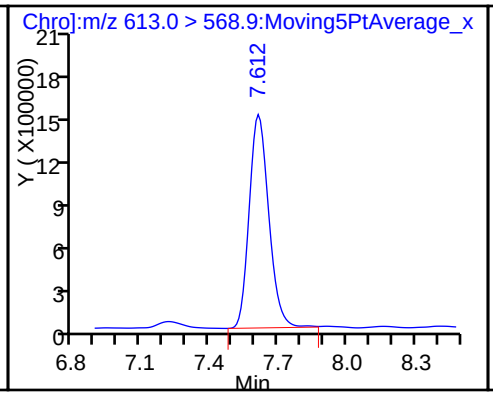
27 Perfluoroundecanoic acid



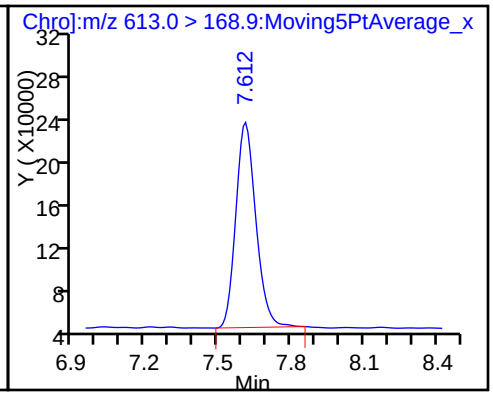
* 28 13C2 PFDoA (IS)



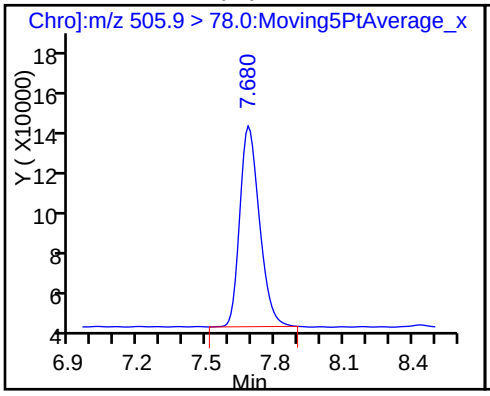
29 Perfluorododecanoic acid



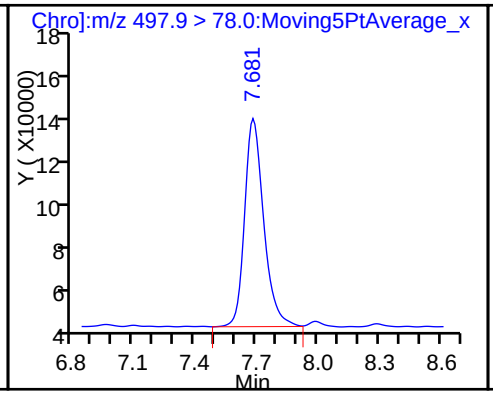
29 Perfluorododecanoic acid



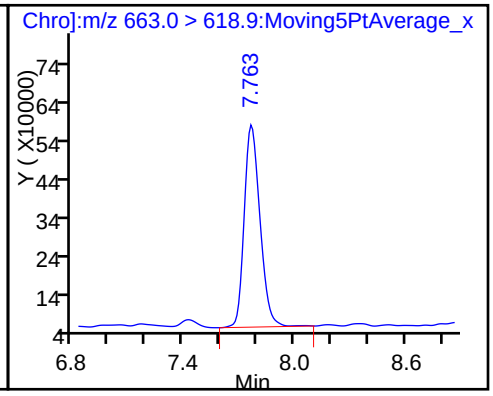
* 31 13C8 FOSA (IS)



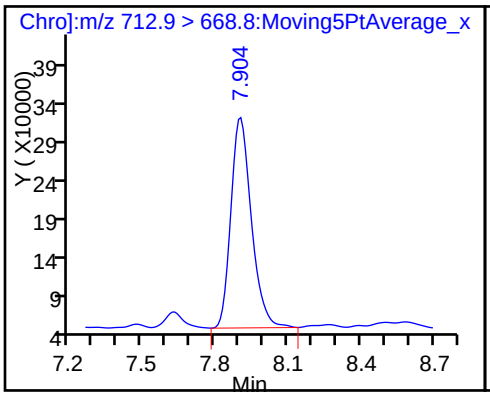
32 Perfluorooctane Sulfonamide



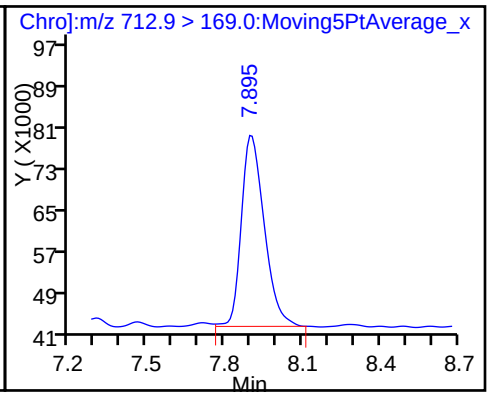
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



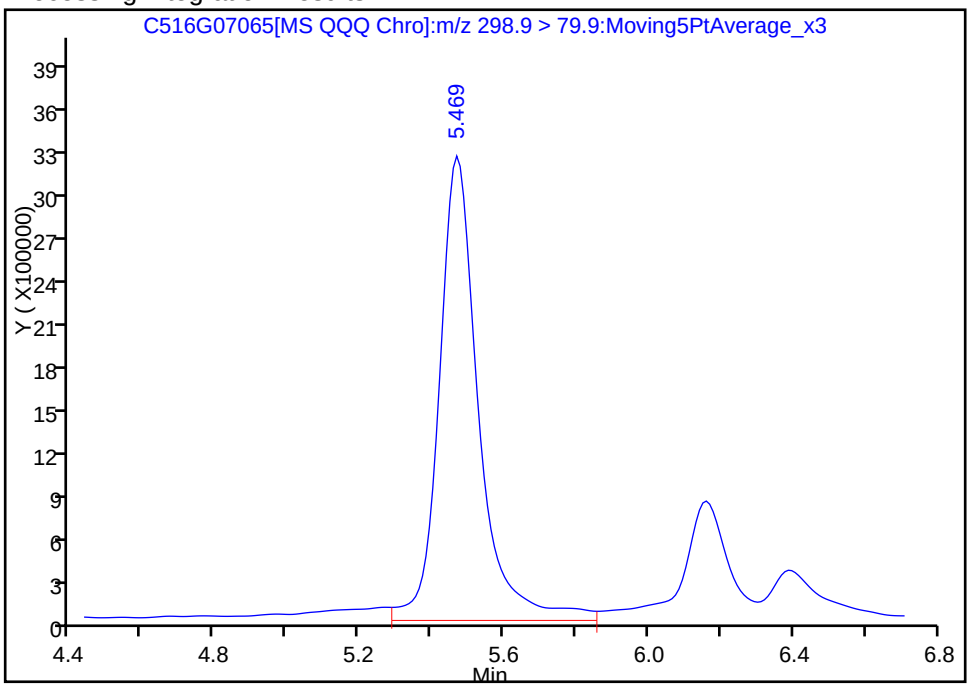
TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07065.d
Injection Date: 07-Jul-2016 19:23:11 Instrument ID: LC_LCMS5
Lims ID: 280-85194-G-1-A MSD
Client ID:
Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 30
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Method: 8321_PFC Limit Group: LC - PFC
Column: Detector MS QQQ

4 Perfluorobutane Sulfonate, CAS: 29420-43-3

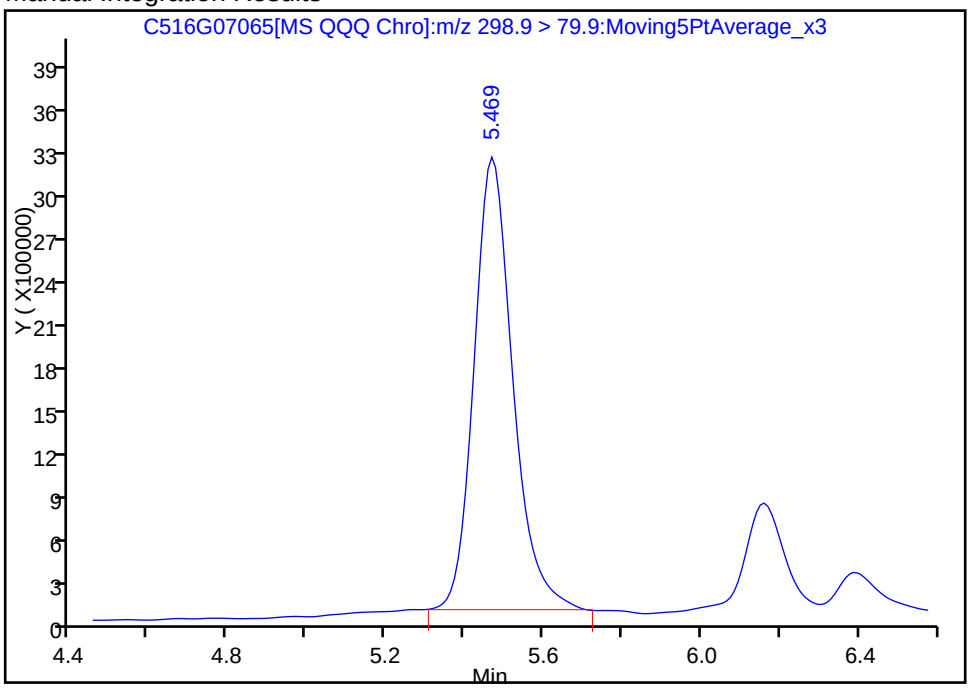
Processing Integration Results

RT: 5.47
Area: 24027168
Amount: 24.437501
Amount Units: ug/L



Manual Integration Results

RT: 5.47
Area: 21090248
Amount: 21.451421
Amount Units: ug/L



Reviewer: fiedlerh, 08-Jul-2016 08:25:32
Audit Action: Manually Integrated
Audit Reason: Baseline

Manual Integration/User Assign Peak Report

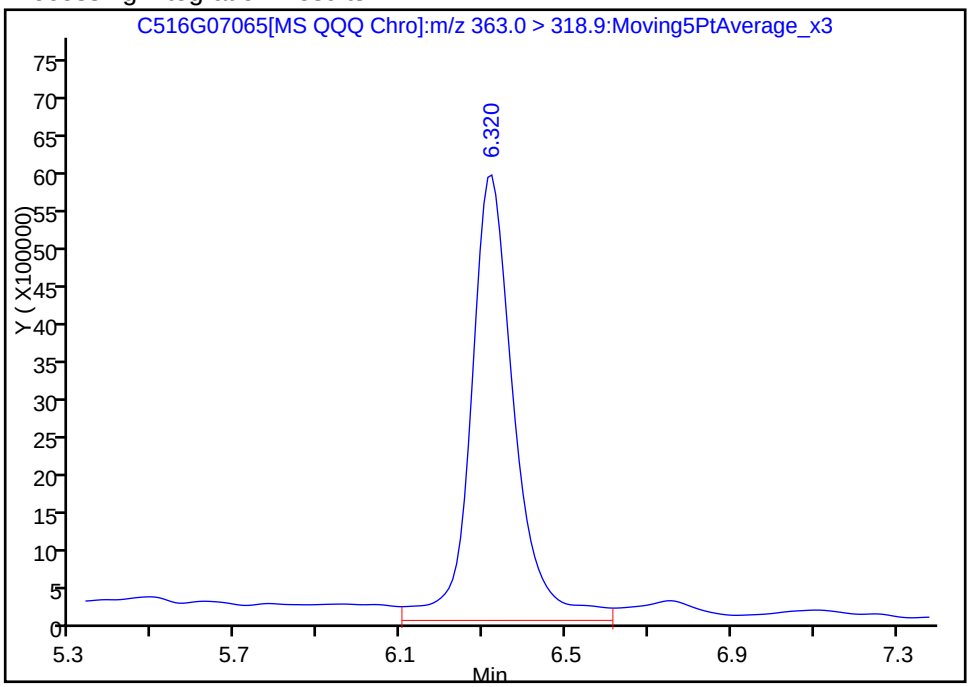
TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07065.d
Injection Date: 07-Jul-2016 19:23:11 Instrument ID: LC_LCMS5
Lims ID: 280-85194-G-1-A MSD
Client ID:
Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 30
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Method: 8321_PFC Limit Group: LC - PFC
Column: Detector MS QQQ

8 Perfluoroheptanoic acid, CAS: 375-85-9

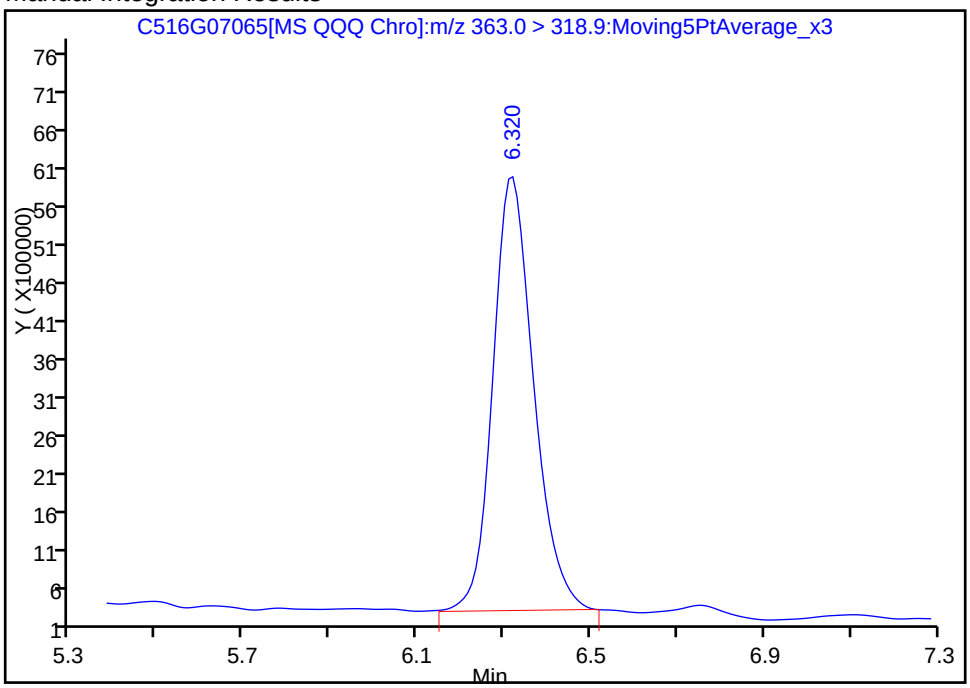
Processing Integration Results

RT: 6.32
Area: 43183699
Amount: 37.092927
Amount Units: ug/L



Manual Integration Results

RT: 6.32
Area: 37324880
Amount: 32.055919
Amount Units: ug/L



Reviewer: fiedlerh, 08-Jul-2016 08:25:32
Audit Action: Manually Integrated
Audit Reason: Baseline

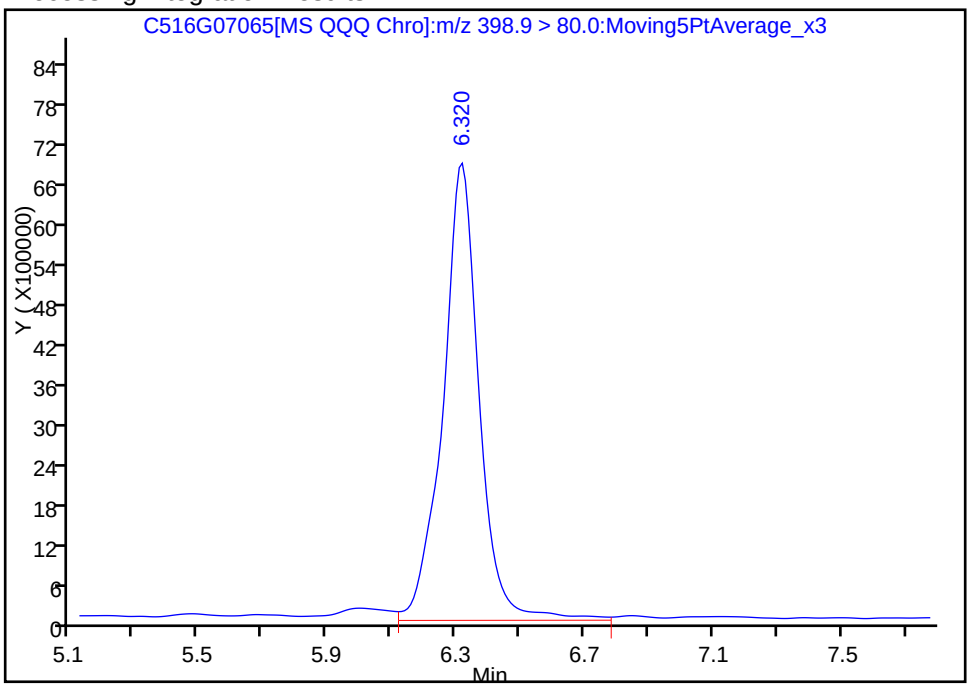
TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160707-48611.b\PC516G07065.d
Injection Date: 07-Jul-2016 19:23:11 Instrument ID: LC_LCMS5
Lims ID: 280-85194-G-1-A MSD
Client ID:
Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 30
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Method: 8321_PFC Limit Group: LC - PFC
Column: Detector MS QQQ

10 Perfluorohexane Sulfonate, CAS: 108427-53-8

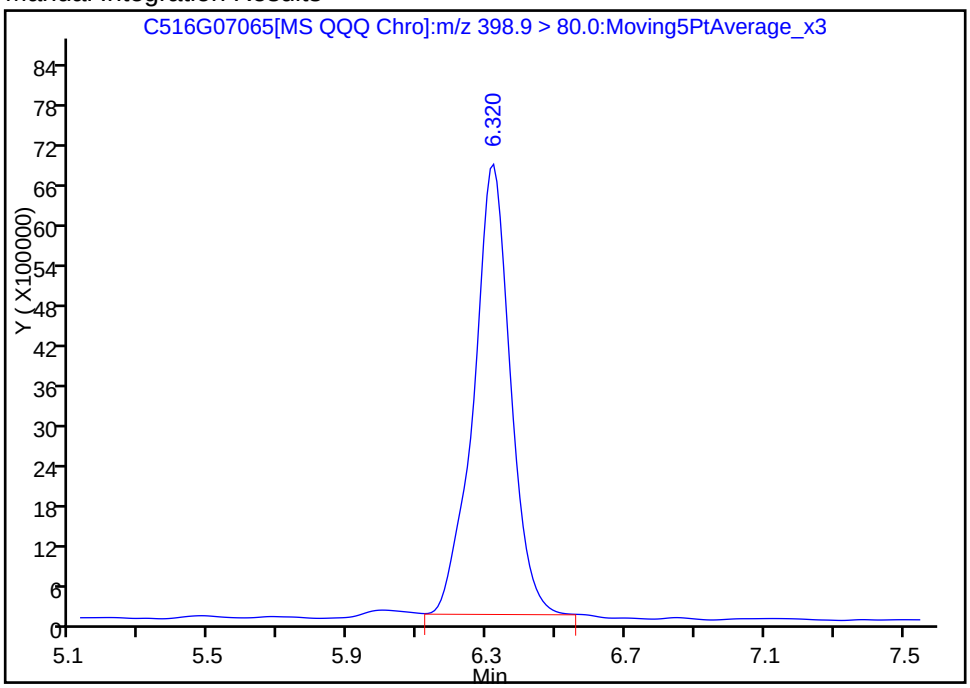
Processing Integration Results

RT: 6.32
Area: 53866111
Amount: 74.571228
Amount Units: ug/L



Manual Integration Results

RT: 6.32
Area: 49826982
Amount: 68.973093
Amount Units: ug/L



Reviewer: fiedlerh, 08-Jul-2016 08:25:32
Audit Action: Manually Integrated
Audit Reason: Baseline

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Instrument ID: LC_LCMS5 Start Date: 06/06/2016 14:49

Analysis Batch Number: 328740 End Date: 06/06/2016 19:20

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
STD0002 280-328740/3 IC		06/06/2016 14:49	1	PC516F06008.d	Gemini-NX
STD0005 280-328740/4 IC		06/06/2016 15:02	1	PC516F06009.d	Gemini-NX
STD0010 280-328740/5 IC		06/06/2016 15:14	1	PC516F06010.d	Gemini-NX
STD0020 280-328740/6 ICISAV		06/06/2016 15:26	1	PC516F06011.d	Gemini-NX
STD0050 280-328740/7 IC		06/06/2016 15:39	1	PC516F06012.d	Gemini-NX
STD0100 280-328740/8 IC		06/06/2016 15:51	1	PC516F06013.d	Gemini-NX
STD0200 280-328740/9 IC		06/06/2016 16:03	1	PC516F06014.d	Gemini-NX
STD0500 280-328740/10 IC		06/06/2016 16:16	1	PC516F06015.d	Gemini-NX
STD1250 280-328740/11 IC		06/06/2016 16:28	1	PC516F06016.d	Gemini-NX
ICB 280-328740/12		06/06/2016 16:40	1	PC516F06017.d	Gemini-NX
ICV 280-328740/13		06/06/2016 16:53	1	PC516F06018.d	Gemini-NX
DLCK 280-328740/14		06/06/2016 17:05	1	PC516F06019.d	Gemini-NX
ZZZZZ		06/06/2016 17:17	1		Gemini-NX
ZZZZZ		06/06/2016 17:29	1		Gemini-NX
ZZZZZ		06/06/2016 17:42	1		Gemini-NX
ZZZZZ		06/06/2016 17:54	1		Gemini-NX
ZZZZZ		06/06/2016 18:06	1		Gemini-NX
ZZZZZ		06/06/2016 18:19	1		Gemini-NX
ZZZZZ		06/06/2016 18:31	1		Gemini-NX
ZZZZZ		06/06/2016 18:43	1		Gemini-NX
ZZZZZ		06/06/2016 18:56	1		Gemini-NX
ZZZZZ		06/06/2016 19:08	1		Gemini-NX
CCV 280-328740/25		06/06/2016 19:20	1		Gemini-NX

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Instrument ID: LC_LCMS5 Start Date: 07/07/2016 13:50

Analysis Batch Number: 332793 End Date: 07/07/2016 20:37

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 280-332793/3		07/07/2016 13:50	1	PC516G07038.d	Gemini-NX
MB 280-332389/1-A		07/07/2016 14:03	1	PC516G07039.d	Gemini-NX
LCS 280-332389/2-A		07/07/2016 14:15	1	PC516G07040.d	Gemini-NX
ZZZZZ		07/07/2016 14:27	1		Gemini-NX
ZZZZZ		07/07/2016 14:39	1		Gemini-NX
280-85171-2		07/07/2016 14:52	1	PC516G07043.d	Gemini-NX
280-85171-2 MS		07/07/2016 15:04	1	PC516G07044.d	Gemini-NX
280-85171-2 MSD		07/07/2016 15:16	1	PC516G07045.d	Gemini-NX
280-85171-3		07/07/2016 15:29	1	PC516G07046.d	Gemini-NX
280-85171-4		07/07/2016 15:41	1	PC516G07047.d	Gemini-NX
280-85171-5		07/07/2016 15:53	1	PC516G07048.d	Gemini-NX
CCV 280-332793/14		07/07/2016 16:06	1	PC516G07049.d	Gemini-NX
280-85171-6		07/07/2016 16:18	1	PC516G07050.d	Gemini-NX
280-85171-7		07/07/2016 16:30	1	PC516G07051.d	Gemini-NX
280-85171-8		07/07/2016 16:43	1	PC516G07052.d	Gemini-NX
280-85171-9		07/07/2016 16:55	1	PC516G07053.d	Gemini-NX
280-85171-10		07/07/2016 17:07	1	PC516G07054.d	Gemini-NX
280-85171-11		07/07/2016 17:20	1	PC516G07055.d	Gemini-NX
280-85171-12		07/07/2016 17:32	1	PC516G07056.d	Gemini-NX
280-85171-13		07/07/2016 17:44	1	PC516G07057.d	Gemini-NX
280-85171-14		07/07/2016 17:56	1	PC516G07058.d	Gemini-NX
280-85171-15		07/07/2016 18:09	1	PC516G07059.d	Gemini-NX
CCV 280-332793/25		07/07/2016 18:21	1	PC516G07060.d	Gemini-NX
MB 280-332379/1-A		07/07/2016 18:33	1	PC516G07061.d	Gemini-NX
LCS 280-332379/2-A		07/07/2016 18:46	1	PC516G07062.d	Gemini-NX
ZZZZZ		07/07/2016 18:58	1		Gemini-NX
280-85194-A-1-A MS		07/07/2016 19:10	1	PC516G07064.d	Gemini-NX
280-85194-G-1-A MSD		07/07/2016 19:23	1	PC516G07065.d	Gemini-NX
ZZZZZ		07/07/2016 19:35	1		Gemini-NX
ZZZZZ		07/07/2016 19:47	1		Gemini-NX
ZZZZZ		07/07/2016 20:00	1		Gemini-NX
280-85171-1		07/07/2016 20:12	1	PC516G07069.d	Gemini-NX
280-85171-25		07/07/2016 20:24	1	PC516G07070.d	Gemini-NX
CCV 280-332793/36		07/07/2016 20:37	1	PC516G07071.d	Gemini-NX

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Instrument ID: LC_LCMS5 Start Date: 07/08/2016 13:01

Analysis Batch Number: 333083 End Date: 07/08/2016 18:33

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 280-333083/3		07/08/2016 13:01	1	PC516G08008.d	Gemini-NX
280-85171-2 DL		07/08/2016 13:13	5	PC516G08009.d	Gemini-NX
280-85171-2 MS DL		07/08/2016 13:25	5	PC516G08010.d	Gemini-NX
280-85171-2 MSD DL		07/08/2016 13:38	5	PC516G08011.d	Gemini-NX
280-85171-7 DL		07/08/2016 13:50	2	PC516G08012.d	Gemini-NX
280-85171-15 DL		07/08/2016 14:02	20	PC516G08013.d	Gemini-NX
CCV 280-333083/9		07/08/2016 14:15	1	PC516G08014.d	Gemini-NX
MB 280-332390/1-A		07/08/2016 14:27	1	PC516G08015.d	Gemini-NX
LCS 280-332390/2-A		07/08/2016 14:39	1	PC516G08016.d	Gemini-NX
280-85171-16		07/08/2016 14:51	1	PC516G08017.d	Gemini-NX
280-85171-17		07/08/2016 15:04	1	PC516G08018.d	Gemini-NX
280-85171-18		07/08/2016 15:16	1	PC516G08019.d	Gemini-NX
280-85171-19		07/08/2016 15:28	1	PC516G08020.d	Gemini-NX
280-85171-20		07/08/2016 15:41	1	PC516G08021.d	Gemini-NX
280-85171-21		07/08/2016 15:53	1	PC516G08022.d	Gemini-NX
280-85171-22		07/08/2016 16:05	1	PC516G08023.d	Gemini-NX
280-85171-23		07/08/2016 16:18	1	PC516G08024.d	Gemini-NX
CCV 280-333083/20		07/08/2016 16:30	1	PC516G08025.d	Gemini-NX
280-85171-23 MS		07/08/2016 16:42	1	PC516G08026.d	Gemini-NX
280-85171-23 MSD		07/08/2016 16:55	1	PC516G08027.d	Gemini-NX
280-85171-24		07/08/2016 17:07	1	PC516G08028.d	Gemini-NX
280-85171-26		07/08/2016 17:19	1	PC516G08029.d	Gemini-NX
280-85171-27		07/08/2016 17:31	1	PC516G08030.d	Gemini-NX
280-85171-28		07/08/2016 17:44	1	PC516G08031.d	Gemini-NX
280-85171-29		07/08/2016 17:56	1	PC516G08032.d	Gemini-NX
280-85171-30		07/08/2016 18:08	1	PC516G08033.d	Gemini-NX
CCV 280-333083/30		07/08/2016 18:33	1	PC516G08035.d	Gemini-NX

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Batch Number: 332379 Batch Start Date: 07/05/16 12:12 Batch Analyst: Knauf, James R

Batch Method: 3535 Batch End Date: 07/05/16 16:20

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	PFC-LCS 00081	PFC_Surr&IS 00023
MB 280-332379/1		3535, DV-LC-0012				250 mL	5 mL		0.1 mL
LCS 280-332379/2		3535, DV-LC-0012				250 mL	5 mL	0.1 mL	0.1 mL
280-85194-A-1 MS		3535, DV-LC-0012	T	311.5 g	27.0 g	284.5 mL	5 mL	0.1 mL	0.1 mL
280-85194-G-1 MSD		3535, DV-LC-0012	T	305.0 g	28.2 g	276.8 mL	5 mL	0.1 mL	0.1 mL
280-85171-B-1	FB-4	3535, DV-LC-0012	T	275.6 g	27.0 g	248.6 mL	5 mL		0.1 mL
280-85171-A-25	FB-5	3535, DV-LC-0012	T	293.5 g	27.0 g	266.5 mL	5 mL		0.1 mL

Batch Notes	
Acid ID	2% Formic Aci_00092
Acid Name	2% Formic Acid
Balance ID	24950441
Batch Comment	Reviewed by: JK S/S: YJC (Trainee: YJC)
First End time	7.5.16 1405
H2O ID	HPLC_Water_00640/641
Pipette ID	M, SPE-1
Reagent ID	10% Ammonium Hydroxide
Reagent Lot Number	10%_NH4OH_00071/72
Solvent Name	Methanol
SOP Number	DV-OP-0019
SPE Cartridge Type	Phenomenex Strata X-AW
Solid Phase Extraction Disk ID	S308-0064
First Start time	7.5.16 1245

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Batch Number: 332389 Batch Start Date: 07/05/16 14:35 Batch Analyst: Knaub, Gentry L

Batch Method: PFC leach Batch End Date: 07/06/16 15:45

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	CalcMsg	PFC-LCS 00082	PFC_Surr&IS 00024	AnalysisComment
MB 280-332389/1		PFC leach, DV-LC-0012		10 g	20 mL	CALC NOT SET TO RUN		0.4 mL	Actual: 10.62
LCS 280-332389/2		PFC leach, DV-LC-0012		10 g	20.4 mL	CALC NOT SET TO RUN	0.4 mL	0.4 mL	Actual: 10.57
280-85171-A-2	SB001-0.5	PFC leach, DV-LC-0012	T	10.61 g	20 mL	CALC NOT SET TO RUN		0.4 mL	
280-85171-A-2 MS	SB001-0.5	PFC leach, DV-LC-0012	T	10.97 g	20.4 mL	CALC NOT SET TO RUN	0.4 mL	0.4 mL	
280-85171-A-2 MSD	SB001-0.5	PFC leach, DV-LC-0012	T	10.18 g	20.4 mL	CALC NOT SET TO RUN	0.4 mL	0.4 mL	
280-85171-A-3	SB001-13.0	PFC leach, DV-LC-0012	T	10.25 g	20 mL	CALC NOT SET TO RUN		0.4 mL	
280-85171-A-4	SB001-18.0	PFC leach, DV-LC-0012	T	10.49 g	20 mL	CALC NOT SET TO RUN		0.4 mL	
280-85171-A-5	SB002-0.5	PFC leach, DV-LC-0012	T	10.51 g	20 mL	CALC NOT SET TO RUN		0.4 mL	
280-85171-A-6	SB003-0.5	PFC leach, DV-LC-0012	T	10.43 g	20 mL	CALC NOT SET TO RUN		0.4 mL	
280-85171-A-7	SB006-0.5	PFC leach, DV-LC-0012	T	10.42 g	20 mL	CALC NOT SET TO RUN		0.4 mL	
280-85171-A-8	SB006-8.0	PFC leach, DV-LC-0012	T	10.54 g	20 mL	CALC NOT SET TO RUN		0.4 mL	
280-85171-A-9	SB006-16.0	PFC leach, DV-LC-0012	T	10.50 g	20 mL	CALC NOT SET TO RUN		0.4 mL	
280-85171-A-10	SB007-0.5	PFC leach, DV-LC-0012	T	10.04 g	20 mL	CALC NOT SET TO RUN		0.4 mL	
280-85171-A-11	SB007-4.5	PFC leach, DV-LC-0012	T	10.47 g	20 mL	CALC NOT SET TO RUN		0.4 mL	
280-85171-A-12	SB-DUP	PFC leach, DV-LC-0012	T	10.18 g	20 mL	CALC NOT SET TO RUN		0.4 mL	
280-85171-A-13	SB007-16.0	PFC leach, DV-LC-0012	T	10.33 g	20 mL	CALC NOT SET TO RUN		0.4 mL	
280-85171-A-14	SB009-0.5	PFC leach, DV-LC-0012	T	10.63 g	20 mL	CALC NOT SET TO RUN		0.4 mL	
280-85171-A-15	SB008-0.5	PFC leach, DV-LC-0012	T	10.80 g	20 mL	CALC NOT SET TO RUN		0.4 mL	

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Batch Number: 332389 Batch Start Date: 07/05/16 14:35 Batch Analyst: Knaub, Gentry L

Batch Method: PFC leach Batch End Date: 07/06/16 15:45

Batch Notes	
Analyst	Gentry Knaub Pip:N, Reviewer: JDW
Balance ID	24750526
Batch Comment	Filtered by:GLK
HCl Concentration	2.4N
Lot # of hydrochloric acid	2.4_M_HCI_00004
HCl Pipette ID	N
MeOH Pipette #	Grad Cyl.
Methanol ID	HPLC_MeOH_00002
NaOH Concentration	0.67N
NaOH Lot #	0.67N_NaOH_00010
NaOH pipette ID	Grad. Cyl.
Nominal Amount Used	10 g
Ottawa Sand ID	156690
PVDF Filter ID	7013410
Perform Calculation (0=No, 1=Yes)	0
SOP Number	DV-OP-0019
Tumble End Time	1515
Tumble End Date	07.06.16
Tumble Start Time	1515
Tumble Start Date	07.05.16

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Batch Number: 332390 Batch Start Date: 07/05/16 14:35 Batch Analyst: Knaub, Gentry L

Batch Method: PFC leach Batch End Date: 07/06/16 15:55

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	CalcMsg	PFC-LCS 00082	PFC_Surr&IS 00024	AnalysisComment
MB 280-332390/1		PFC leach, DV-LC-0012		10 g	20 mL	CALC NOT SET TO RUN		0.4 mL	Actual: 10.29
LCS 280-332390/2		PFC leach, DV-LC-0012		10 g	20.4 mL	CALC NOT SET TO RUN	0.4 mL	0.4 mL	Actual: 10.43
280-85171-A-16	SB009-6.0	PFC leach, DV-LC-0012	T	10.40 g	20 mL	CALC NOT SET TO RUN		0.4 mL	
280-85171-A-17	SB009-10.5	PFC leach, DV-LC-0012	T	10.91 g	20 mL	CALC NOT SET TO RUN		0.4 mL	
280-85171-A-18	SB008-6.0	PFC leach, DV-LC-0012	T	10.06 g	20 mL	CALC NOT SET TO RUN		0.4 mL	
280-85171-A-19	SB008-12.0	PFC leach, DV-LC-0012	T	10.37 g	20 mL	CALC NOT SET TO RUN		0.4 mL	
280-85171-A-20	SB002-4.5	PFC leach, DV-LC-0012	T	10.67 g	20 mL	CALC NOT SET TO RUN		0.4 mL	
280-85171-A-21	SB002-12.0	PFC leach, DV-LC-0012	T	10.99 g	20 mL	CALC NOT SET TO RUN		0.4 mL	
280-85171-A-22	SB003-7.5	PFC leach, DV-LC-0012	T	10.69 g	20 mL	CALC NOT SET TO RUN		0.4 mL	
280-85171-A-23	SB003-12.0	PFC leach, DV-LC-0012	T	10.13 g	20 mL	CALC NOT SET TO RUN		0.4 mL	
280-85171-A-23 MS	SB003-12.0	PFC leach, DV-LC-0012	T	10.40 g	20.4 mL	CALC NOT SET TO RUN	0.4 mL	0.4 mL	
280-85171-A-23 MSD	SB003-12.0	PFC leach, DV-LC-0012	T	10.11 g	20.4 mL	CALC NOT SET TO RUN	0.4 mL	0.4 mL	
280-85171-A-24	SB004-0.5	PFC leach, DV-LC-0012	T	10.64 g	20 mL	CALC NOT SET TO RUN		0.4 mL	
280-85171-A-26	SB004-5.8	PFC leach, DV-LC-0012	T	10.41 g	20 mL	CALC NOT SET TO RUN		0.4 mL	
280-85171-A-27	SB004-12.0	PFC leach, DV-LC-0012	T	10.73 g	20 mL	CALC NOT SET TO RUN		0.4 mL	
280-85171-A-28	SB005-0.5	PFC leach, DV-LC-0012	T	10.23 g	20 mL	CALC NOT SET TO RUN		0.4 mL	
280-85171-A-29	SB005-6.0	PFC leach, DV-LC-0012	T	10.61 g	20 mL	CALC NOT SET TO RUN		0.4 mL	
280-85171-A-30	SB005-12.0	PFC leach, DV-LC-0012	T	10.28 g	20 mL	CALC NOT SET TO RUN		0.4 mL	

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Batch Number: 332390 Batch Start Date: 07/05/16 14:35 Batch Analyst: Knaub, Gentry L

Batch Method: PFC leach Batch End Date: 07/06/16 15:55

Batch Notes	
Analyst	Gentry Knaub Pip:N, Reviewer: JDW
Balance ID	24750526
Batch Comment	Filtered by: GLK
HCl Concentration	2.4N
Lot # of hydrochloric acid	2.4_M_HCI_00004
HCl Pipette ID	N
MeOH Pipette #	Grad Cyl.
Methanol ID	HPLC_MeOH_00002
NaOH Concentration	0.67N
NaOH Lot #	0.67N_NaOH_00010
NaOH pipette ID	Grad. Cyl.
Nominal Amount Used	10 g
Ottawa Sand ID	156690
PVDF Filter ID	7013410
Perform Calculation (0=No, 1=Yes)	0
SOP Number	DV-OP-0019
Tumble End Time	1515
Tumble End Date	07.06.16
Tumble Start Time	1515
Tumble Start Date	07.05.16

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY

COVER PAGE
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job Number: 280-85171-1

SDG No.:

Project: Stewart International Airport (PFAS)

Client Sample ID	Lab Sample ID
SB001-0.5	280-85171-2
SB001-13.0	280-85171-3
SB001-18.0	280-85171-4
SB002-0.5	280-85171-5
SB003-0.5	280-85171-6
SB006-0.5	280-85171-7
SB006-8.0	280-85171-8
SB006-16.0	280-85171-9
SB007-0.5	280-85171-10
SB007-4.5	280-85171-11
SB-DUP	280-85171-12
SB007-16.0	280-85171-13
SB009-0.5	280-85171-14
SB008-0.5	280-85171-15
SB009-6.0	280-85171-16
SB009-10.5	280-85171-17
SB008-6.0	280-85171-18
SB008-12.0	280-85171-19
SB002-4.5	280-85171-20
SB002-12.0	280-85171-21
SB003-7.5	280-85171-22
SB003-12.0	280-85171-23
SB004-0.5	280-85171-24
SB004-5.8	280-85171-26
SB004-12.0	280-85171-27
SB005-0.5	280-85171-28
SB005-6.0	280-85171-29
SB005-12.0	280-85171-30

Comments:

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job Number: 280-85171-1

SDG Number:

Matrix: Solid Instrument ID: NOEQUIP

Method: Moisture RL Date: 11/01/2009 00:00

Analyte	Wavelength/ Mass	RL (%)	
Percent Moisture		0.1	
Percent Solids		0.1	

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Instrument ID: NOEQUIP Method: Moisture

Start Date: 07/07/2016 06:50 End Date: 07/07/2016 06:54

Lab Sample ID	D / F	Type	Time	Analytes																				
				% Sol	Moist																			
ZZZZZZ			06:50																					
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13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Instrument ID: NOEQUIP Method: Moisture

Start Date: 07/07/2016 06:50 End Date: 07/07/2016 06:54

Lab Sample ID	D / F	Type	Time	Analytes																			
				% Sol	Moist																		
ZZZZZZ			06:50																				
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ZZZZZZ			06:50																				
ZZZZZZ			06:50																				
280-85171-2	1	T	06:50	X	X																		
280-85171-3	1	T	06:50	X	X																		
280-85171-4	1	T	06:50	X	X																		
280-85171-5	1	T	06:50	X	X																		
280-85171-6	1	T	06:50	X	X																		
280-85171-7	1	T	06:50	X	X																		
280-85171-8	1	T	06:50	X	X																		
280-85171-9	1	T	06:50	X	X																		
280-85171-10	1	T	06:50	X	X																		
280-85171-11	1	T	06:50	X	X																		
280-85171-12	1	T	06:50	X	X																		
280-85171-13	1	T	06:50	X	X																		
280-85171-13 DU	1	T	06:50	X	X																		
280-85171-14	1	T	06:50	X	X																		
280-85171-15	1	T	06:50	X	X																		
280-85171-16	1	T	06:50	X	X																		
280-85171-17	1	T	06:50	X	X																		
280-85171-18	1	T	06:50	X	X																		
280-85171-19	1	T	06:50	X	X																		
280-85171-20	1	T	06:50	X	X																		
280-85171-21	1	T	06:50	X	X																		
280-85171-22	1	T	06:50	X	X																		
280-85171-23	1	T	06:50	X	X																		
280-85171-24	1	T	06:50	X	X																		
280-85171-26	1	T	06:50	X	X																		
280-85171-27	1	T	06:50	X	X																		
280-85171-28	1	T	06:50	X	X																		
280-85171-29	1	T	06:50	X	X																		
280-85171-30	1	T	06:50	X	X																		
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13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Instrument ID: NOEQUIP Method: Moisture

Start Date: 07/07/2016 06:50 End Date: 07/07/2016 06:54

Lab Sample ID	D / F	Type	Time	Analytes																				
				% Sol	Moist																			
ZZZZZZ			06:50																					
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Prep Types

T = Total/NA

TestAmerica Denver

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Top-Loading Balance Calibration Verification Log

DV-QA-0014

ACCEPTANCE CRITERIA: **0.01 READABILITY:** For <20 g, true mass ± 0.02 g: for ≥ 20 g, true mass ± 0.1%
0.1 READABILITY: For <200 g, true mass ± 0.2 g: for ≥ 200 g, true mass ± 0.1%

Date	Weight Serial Number	Weight Used	Balance Reading (g)	Initials	Acceptable? (Y/N)/Comments
06/30/16	66040	1.00 g	1.00 g	I.u	y
	66040	10.00 g	9.99 g		y
	66040	100.0 g	100.00 g		y
6/30/16	0705	2000 g	1999.6	AS	y
		AS 6/30/16			AS 6/30/16
7/01/16	66040	1.00 g	1.00 g	I.u	y
	66040	10.00 g	9.99 g		y
	66040	100.00 g	99.99 g		y
7/02/16	66040	1 g	1.01	RSM 7/02/16	y
	66040	10 g	~~10.01~~ 10.01 SSM		y
	66040	100 g	99.99		y
7/5/16	66040	1 g	0.99	SVC	y
	66040	10 g	9.99		y
	66040	100 g	99.97		y
07/6/16	66040	1 g	0.99 g	I.u	y
	66040	10 g	9.99 g		y
	66040	100 g	99.99 g		y
07/07/16	66040	1.00 g	1.00 g	I.u	y
	66040	10.00 g	10.00 g		y
	66040	100.00 g	100.00 g		y
7/7/16	0705	2000 g	1999.9	AS	y
		AS 7/7/16			AS 7/7/16
07/08/16	66040	1 g	1.00 g	I.u	y
	66040	10 g	10.00 g		y
	66040	100 g	100.00 g		y
7/8/16	0705	~~1999.8~~ 2000 g	1999.8	AS	y
		AS 7/8/16			AS 7/8/16

TestAmerica Denver

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Gravimetric-Solids Data Review Checklist

LIMS Batch Number: 332707		Instrument ID: BAC
Analyst/1st Reviewer/Date: A.U 07/11/2016	Method: Moisture	QC Type (circle): Standard LCSD DOD Q4 DoD QS QAPP_____ Other_____
Method (circle): 2540B 2540C 2540D 160.4 1664A 1664B 9071 D5057 D1429 D2216		
Matrix (circle): Water Solid Waste		

Review Items	Yes	No	NA	2nd rev	If No, why is data reportable?
A. Balance, Oven and DI water Checks					
Was the balance calibration verified before and after processing samples and noted in the "Balance Calibration Log" for the date(s) the samples were processed?	✓			✓	
Was the daily conductivity check of the deionized water recorded in the "Conductivity Logbook"?			✓	✓	
Temps. within the required temperature of the method: % Moisture: 100°C ± 5°C % Vol. 103°C - 105°C % Solids, TS, TSS, TVSS, VSS 103°C - 105°C TDS 180°C ± 2°C %Vol, TVSS, VSS 550°C ± 50°C Other:_____ _____	✓			✓	
B. Method Requirements					
QC Batch contains no greater than 20 samples?	✓			✓	
If sample is visibly oily, was this noted on the benchsheet?			✓	✓	
Was final residue weight within minimum/maximum requirements?	✓			✓	
Were the initial and final drying dates and times recorded on the benchsheet/TALS and were all samples dried for at least one hour?	✓			✓	
C. Preparation/ Matrix QC					
Matrix Duplicate (RPD ± 5 %) (If > 5 %, determine corrective per SOP.) The RPD limit of 5% applies to TSS, TDS and TS, 20% RPD for all others	✓			✓	
Method blank < ½ RL or all reported samples > 10 X RL? - **(HEM, SGT HEM, and TDS the MB <RL)**			✓	✓	
LCS/LCSD run for batch and within QC limits?			✓	✓	
D. Preparation/ Matrix QC					
TDS/Conductivity ratio or historical data checked?	✓			✓	
For % Moisture, was the Final Dried Weight < the Initial Pan Weight or is the result greater than 100%?	✓			✓	
Were sample analyses done within holding time? **If no, create HTV NCM. NCM#**	✓			✓	
Were special client requirements met?	✓			✓	
Were data that were manually transcribed from instrument printouts into TALS verified 100% including dilution factors, significant figures and units?	✓			✓	
Do the prep and analysis dates in TALS reflect the actual dates?	✓			✓	
STD/True Value information is updated and included?	✓			✓	

Review Items	NA	Yes	No	2nd rev	If No, why is data reportable?
F. Data and TALS review					
1. Raw Data					
a. Unused data is clearly identified with reason not used		✓		✓	
b. All cross outs are initialed and dated		✓		✓	
c. Raw data includes the method, date, and analyst initials/signature		✓		✓	
2. TALS Samples Tab					
a. LIMS Sample IDs / Containers are correct		✓		✓	
b. Method and matrix are correct		✓		✓	
c. Date and time match raw data		✓		✓	
d. Dilutions are correct		✓		✓	
e. Correct suffix (DU, MS, MSD) designated (where applicable)		✓		✓	
3. TALS Worksheet Tab is complete and correct (Initial Amount, Final Amount, pH, etc.)		✓		✓	
4. TALS Reagent Tab is complete and correct and properly associated with QC samples. Confirm that reagent amounts are correct. If reagents are new verify that the correct COA has been attached to the source standard		✓		✓	
5. TALS QC Links Tab is correct		✓		✓	
6. TALS Sample Results Tab					
a. All unused data are marked Rejected or Accepted		✓		✓	
b. Set status for samples based on QC and sample results info (i.e., set to primary analysis with passing QC or reject samples without passing QC or samples that are over-range.)		✓		✓	
c. Any data that has a qualifier is commented on with appropriate action taken		✓		✓	
7. TALS Batch Information Screen documentation is complete		✓		✓	
8. Historical Data Checker: Check historical data. Print charts for outliers. Take corrective action as is appropriate		✓		✓	
9. TALS Status set to appropriate review level		✓		✓	
E. Final Report and NCMs (2nd level review only)					
1. Were all job/project requirements met?				✓	
2. Results for samples and QC correct on final report?				✓	
3. Are all necessary scanned documents in TALS?				✓	
4. NCMs reviewed for applicability, correct references to batches, grammar/typographical errors?				✓	

Comments: CMR 7/11/16

2nd Reviewer: Caitlyn Mitchell **Review Date:** 7/11/16

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Batch Number: 332707 Batch Start Date: 07/07/16 06:50 Batch Analyst: Uge, Ikem E

Batch Method: Moisture Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	DISH#	DishWeight	SampleMassWet	SampleMassDry		
280-85171-A-2	SB001-0.5	Moisture	T	50	1.29 g	17.20 g	11.92 g		
280-85171-A-3	SB001-13.0	Moisture	T	51	1.28 g	16.64 g	15.85 g		
280-85171-A-4	SB001-18.0	Moisture	T	52	1.30 g	16.34 g	15.18 g		
280-85171-A-5	SB002-0.5	Moisture	T	53	1.29 g	16.66 g	15.31 g		
280-85171-A-6	SB003-0.5	Moisture	T	54	1.29 g	16.62 g	13.70 g		
280-85171-A-7	SB006-0.5	Moisture	T	55	1.29 g	16.20 g	13.23 g		
280-85171-A-8	SB006-8.0	Moisture	T	56	1.30 g	17.43 g	16.28 g		
280-85171-A-9	SB006-16.0	Moisture	T	57	1.27 g	16.76 g	15.63 g		
280-85171-A-10	SB007-0.5	Moisture	T	58	1.29 g	16.99 g	15.34 g		
280-85171-A-11	SB007-4.5	Moisture	T	59	1.28 g	16.78 g	15.03 g		
280-85171-A-12	SB-DUP	Moisture	T	60	1.30 g	16.43 g	15.11 g		
280-85171-A-13	SB007-16.0	Moisture	T	61	1.28 g	16.70 g	15.36 g		
280-85171-A-13 DU	SB007-16.0	Moisture	T	62	1.29 g	16.44 g	15.14 g		
280-85171-A-14	SB009-0.5	Moisture	T	63	1.28 g	16.53 g	15.06 g		
280-85171-A-15	SB008-0.5	Moisture	T	64	1.28 g	16.63 g	14.37 g		
280-85171-A-16	SB009-6.0	Moisture	T	65	1.28 g	16.24 g	14.29 g		
280-85171-A-17	SB009-10.5	Moisture	T	66	1.29 g	16.47 g	14.66 g		
280-85171-A-18	SB008-6.0	Moisture	T	67	1.29 g	16.50 g	15.09 g		
280-85171-A-19	SB008-12.0	Moisture	T	68	1.27 g	16.44 g	15.07 g		
280-85171-A-20	SB002-4.5	Moisture	T	69	1.28 g	16.47 g	15.58 g		
280-85171-A-21	SB002-12.0	Moisture	T	70	1.28 g	16.95 g	15.83 g		
280-85171-A-22	SB003-7.5	Moisture	T	71	1.26 g	16.90 g	15.71 g		
280-85171-A-23	SB003-12.0	Moisture	T	72	1.28 g	16.99 g	15.75 g		
280-85171-A-24	SB004-0.5	Moisture	T	73	1.29 g	16.40 g	15.33 g		
280-85171-A-26	SB004-5.8	Moisture	T	74	1.27 g	16.76 g	15.37 g		
280-85171-A-27	SB004-12.0	Moisture	T	75	1.28 g	16.95 g	15.56 g		
280-85171-A-28	SB005-0.5	Moisture	T	76	1.29 g	16.76 g	15.91 g		
280-85171-A-29	SB005-6.0	Moisture	T	77	1.30 g	16.73 g	15.65 g		
280-85171-A-30	SB005-12.0	Moisture	T	78	1.30 g	17.30 g	15.76 g		

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Denver Job No.: 280-85171-1

SDG No.:

Batch Number: 332707 Batch Start Date: 07/07/16 06:50 Batch Analyst: Uge, Ikem E

Batch Method: Moisture Batch End Date:

Batch Notes	
Balance ID	H31422
Batch Comment	Oven temp adjusted IU
Date and Time Samples in Desiccator	7/8/16 0919
Date and Time Samples out of Desiccator	7/8/16 1124
Date samples were placed in the oven	07/07/16
Oven Temp In	103 Degrees C
Time samples were place in the oven	0939
Date samples were removed from oven	7/8/16
Oven Temp Out	105 Degrees C
Time Samples were removed from oven	0919
Oven ID	F
Thermometer ID	227-694
Uncorrected In Temperature	103 Celsius
Uncorrected Out Temperature	105 Celsius

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Shipping and Receiving Documents

TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Phone (916) 373-5600 Fax (916) 372-1059

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: John Mahwah / Scott England	Lab PM: Nayyar, Sapna	Carrier Tracking No(s):	COC No: 320-11782-2662.5
Client Contact: Ms. Melissa LaMacchia	Phone: 914-588-8580	E-Mail: sapna.nayyar@testamericainc.com		Page: Page 5 of 11
Company: HDR Inc				Job #:
Address: 1 International Blvd, 10th Floor	Due Date Requested:			
City: Mahwah	TAT Requested (days): 15			
State, Zip: NJ, 07495				
Phone: 845-735-8300(Tel)	PO #: Purchase Order not required			
Email: Melissa.LaMacchia@hdrinc.com	WO #:			
Project Name: Stewart International Airport (PFAS)	Project #: 32008244			
Site: SWF	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA - PFAS, UCMR List	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N		
FB-4	6/29/16	1600	C	Water			2		
SBΦΦ1-0.5		1655	G	Solid			1		
SBΦΦ1-13.0		1700	G	Solid			1		
SBΦΦ1-18.0		1657	G	Solid			1		
SBΦΦ2-0.5		1714	G	Solid			1		
SBΦΦ3-0.5		1720	G	Solid			1		
SBΦΦ6-0.5	6/30/16	0030	G	Solid			1		
SBΦΦ6-8.0		0140	G	Solid			1		
SBΦΦ6-16.0		0142	G	Solid			1		
SBΦΦ7-0.5		0145	G	Solid			1		
SBΦΦ7-4.5		0210	G	Solid			1		

280-85171 Chain of Custody

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) NYSDEC Cat B

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		6/30/16 1750		Reed Fed Ex	7-1-16 0925	FAS
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 5.0 IR #5 +0.0 RP 7-1-16

TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Phone (916) 373-5600 Fax (916) 372-1059

Chain of Custody Record

6/30/16
2 of 3

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Jim Hawk ; Scott Eight	Lab PM: Nayyar, Sapna	Carrier Tracking No(s):	COC No: 320-11782-2662.6
Client Contact: Ms. Melissa LaMacchia	Phone: 914-596-8588	E-Mail: sapna.nayyar@testamericainc.com		Page: Page 6 of 11
Company: HDR Inc				Job #:
Address: 1 International Blvd, 10th Floor	Due Date Requested:	Analysis Requested		Preservation Codes: A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
City: Mahwah	TAT Requested (days): 15			Other:
State, Zip: NJ, 07495				
Phone: 845-735-8300(Tel)	PO #: Purchase Order not required			
Email: Melissa.LaMacchia@hdrinc.com	WO #:			
Project Name: Stewart International Airport (PFAS)	Project #: 32008244			
Site: SWF	SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA - PFAS, UCMR List	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N		
SB-DUP	6/30/16	0200	G	Solid			1		
SB007-16.0		0235	G	Solid			1		
SB009-0.5		0250	G	Solid			1		
SB008-0.5		0300	G	Solid			1		
SB009-6.0		1140	G	Solid			1		
SB009-10.5		1145	G	Solid			1		
SB008-6.0		1220	G	Solid			1		
SB008-12.0		1230	G	Solid			1		
SB002-4.5		1355	G	Solid			1		
SB002-12.0		1405	G	Solid			1		
SB003-7.5	↓	1445	G	Solid			1		

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) NJSDEC CatB

Special Instructions/QC Requirements:

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		6/30/16 1710		Red Pitt	7-1-16 0925	TAS
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Phone (916) 373-5600 Fax (916) 372-1059

Chain of Custody Record

6/30/16 3 of 3

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: John Hawk i, Scott Englet	Lab PM: Nayyar, Sapna	Carrier Tracking No(s):	COC No: 320-11782-2662.7
Client Contact: Ms. Melissa LaMacchia	Phone: 914-585-3580	E-Mail: sapna.nayyar@testamericainc.com		Page: Page 7 of 11
Company: HDR Inc				Job #:
Address: 1 International Blvd, 10th Floor	Due Date Requested:			
City: Mahwah	TAT Requested (days): 15			
State, Zip: NJ, 07495				
Phone: 845-735-8300(Tel)	PO #: Purchase Order not required			
Email: Melissa.LaMacchia@hdrinc.com	WO #:			
Project Name: Stewart International Airport (PFAS)	Project #: 32008244			
Site: SWF	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA - PFAS, UCMR List	Total Number of containers	Special Instructions/Note:
		Preservation Code:					N		
SB003-12.0	6/30/16	1450	G	Solid		Y	3		
SB004-0.5		1520	G	Solid			1		
FB-5		1540	C	Water (1)			2		
SB004-5.8		1545	G	Solid			1		
SB004-12.0		1555	G	Solid			1		
SB005-0.5		1610	G	Solid			1		
SB005-6.0		1640	G	Solid			1		
SB005-12.0	↓	1650	G	Solid			1		
				Solid					
				Solid					
				Solid					

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

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Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		6/30/16 1750		Reed Pitt	7-1-16 0925	TAL
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: △ Yes △ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

07/13/2016

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-85171-1

Login Number: 85171
List Number: 1
Creator: Pottruff, Reed W

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

Job Number: 280-85298-1

Job Description: Stewart International Airport (PFAS)

For:
HDR Inc
1 International Blvd, 10th Floor
Mahwah, NJ 07495

Attention: Ms. Melissa LaMacchia

Approved for release.
Shalini Williams
Project Management Assistant II
8/1/2016 10:28 AM

Designee for
Sapna Nayyar, Project Manager I
777 New Durham Road, Edison, NJ, 08817
sapna.nayyar@testamericainc.com
08/01/2016

TestAmerica Laboratories, Inc.
TestAmerica Denver 4955 Yarrow Street, Arvada, CO 80002
Tel (303) 736-0100 Fax (303) 431-7171 www.testamericainc.com

Table of Contents

Table of Contents

CASE NARRATIVE

Client: HDR Inc

Project: Stewart International Airport (PFAS)

Report Number: 280-85298-1

This case narrative is in the form of an exception report, where only the anomalies related to this report, method specific performance and/or QA/QC issues are discussed. If there are no issues to report, this narrative will include a statement that documents that there are no relevant data issues.

It should be noted that samples with elevated Reporting Limits (RLs) as a result of a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the RLs are unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes or interferences which exceed the calibration range of the instrument.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 7/7/2016 9:25 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.6º C.

Note: All samples which require thermal preservation are considered acceptable if the arrival temperature is within 2C of the required temperature or method specified range. For samples with a specified temperature of 4C, samples with a temperature ranging from just above freezing temperature of water to 6C shall be acceptable. Samples that are hand delivered immediately following collection may not meet these criteria, however they will be deemed acceptable according to NELAC standards, if there is evidence that the chilling process has begun, such as arrival on ice, etc.

PERFLUORINATED HYDROCARBONS (PFC)
Samples SWF-OF-013 (280-85298-1), SWF-OF (280-85298-2), SWF-OF-011 (280-85298-3), SWF-OF-008 (280-85298-4), SWF-OF-010 (280-85298-5), SWF-OF-005 (280-85298-6), SWF-OF-003 (280-85298-7), SWF-FB-6 (280-85298-8), SWF-WB-3 (280-85298-9), DBF-MW-3 (280-85298-10), DBF-MW-4 (280-85298-11), FB-7 (280-85298-12), DBF-MW-5 (280-85298-13) and DBF-MW-1 (280-85298-14) were analyzed for Perfluorinated Hydrocarbons (PFC) in accordance with DV-LC-0012. The samples were prepared on 07/16/2016 and 07/25/2016 and analyzed on 07/18/2016, 07/20/2016 and 07/28/2016.

Method(s) DV-LC-0012: The LCS fails low (69%) for PFBS Limits (70-134)

preparation batch 280-333869 and analytical batch 280-334166

SWF-OF-013 (280-85298-1), SWF-OF-013 (280-85298-1[MS]), SWF-OF-013 (280-85298-1[MSD]), SWF-OF (280-85298-2), SWF-OF-011 (280-85298-3), SWF-OF-008 (280-85298-4), SWF-OF-010 (280-85298-5), SWF-OF-005 (280-85298-6), SWF-OF-003 (280-85298-7), SWF-FB-6 (280-85298-8), SWF-WB-3 (280-85298-9) and DBF-MW-3 (280-85298-10)

Method(s) DV-LC-0012: LCS fail low(69%) for PFBS Limits (70-134%). Samples will be sent for re-extraction.

DBF-MW-4 (280-85298-11), FB-7 (280-85298-12), DBF-MW-5 (280-85298-13) and DBF-MW-1 (280-85298-14)

Method(s) DV-LC-0012: Internal standard responses were outside of acceptance limits for the following samples: SWF-OF-013 (280-85298-1), SWF-OF-013 (280-85298-1[MS]), SWF-OF-013 (280-85298-1[MSD]), SWF-OF (280-85298-2), SWF-OF-011 (280-85298-3), SWF-OF-008 (280-85298-4), SWF-OF-005 (280-85298-6), SWF-OF-003 (280-85298-7), SWF-WB-3 (280-85298-9), DBF-MW-3 (280-85298-10), DBF-MW-4 (280-85298-11), DBF-MW-5 (280-85298-13) and DBF-MW-1 (280-85298-14). The samples show evidence of matrix interference.

The MB and LCS passed internal standard criteria; therefore, as this is an isotope dilution method, the data will be reported with narrative.

Method PFC
preparation batch 280-334942 and analytical batch 280-335652

The following samples: SWF-OF-005 (280-85298-6), DBF-MW-4 (280-85298-11) and DBF-MW-5 (280-85298-13) was decanted prior to preparation. Solvent rinse was not able to be performed on the original container. Batch: 334942 Prep Method: 3535 Analytical Method: PFC

The following samples was re-prepared outside of preparation holding time due to LCS fails low: SWF-OF-013 (280-85298-1),

SWF-OF-013 (280-85298-1[MS]), SWF-OF-013 (280-85298-1[MSD]), SWF-OF (280-85298-2), SWF-OF-011 (280-85298-3), SWF-OF-008 (280-85298-4), SWF-OF-010 (280-85298-5), SWF-OF-005 (280-85298-6), SWF-OF-003 (280-85298-7), SWF-FB-6 (280-85298-8), SWF-WB-3 (280-85298-9), DBF-MW-3 (280-85298-10), DBF-MW-4 (280-85298-11), FB-7 (280-85298-12), DBF-MW-5 (280-85298-13) and DBF-MW-1 (280-85298-14) . Batch: 334942 Prep Method: 3535 Analytical Method: PFC.

HPLC methanol was used instead of LCMS methanol because the company is no longer supplying LCMS methanol. Batch: 334942 Prep Method: 3535 Analytical Method: PFC

SWF-OF-013 (280-85298-1), SWF-OF-013 (280-85298-1[MS]), SWF-OF-013 (280-85298-1[MSD]), SWF-OF (280-85298-2), SWF-OF-011 (280-85298-3), SWF-OF-008 (280-85298-4), SWF-OF-010 (280-85298-5), SWF-OF-005 (280-85298-6), SWF-OF-003 (280-85298-7), SWF-FB-6 (280-85298-8), SWF-WB-3 (280-85298-9), DBF-MW-3 (280-85298-10), DBF-MW-4 (280-85298-11), FB-7 (280-85298-12), DBF-MW-5 (280-85298-13) and DBF-MW-1 (280-85298-14)

Perfluorobutane Sulfonate (PFBS) failed the recovery criteria low for LCS 280-333869/2-A. Refer to the QC report for details.

Perfluorooctanesulfonic acid (PFOS) failed the recovery criteria high for the MS of sample SWF-OF-013MS (280-85298-1) in batch 280-334166.

Refer to the QC report for details.

No other difficulties were encountered during the PFC analysis.

All other quality control parameters were within the acceptance limits.

Sample Summary

Client: HDR Inc
Project/Site: Stewart International Airport (PFAS)

TestAmerica Job ID: 280-85298-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-85298-1	SWF-OF-013	Water	07/05/16 11:05	07/07/16 09:25
280-85298-2	SWF-OF	Water	07/05/16 11:30	07/07/16 09:25
280-85298-3	SWF-OF-011	Water	07/05/16 11:40	07/07/16 09:25
280-85298-4	SWF-OF-008	Water	07/05/16 12:05	07/07/16 09:25
280-85298-5	SWF-OF-010	Water	07/05/16 12:35	07/07/16 09:25
280-85298-6	SWF-OF-005	Water	07/05/16 13:00	07/07/16 09:25
280-85298-7	SWF-OF-003	Water	07/05/16 13:25	07/07/16 09:25
280-85298-8	SWF-FB-6	Water	07/05/16 14:00	07/07/16 09:25
280-85298-9	SWF-WB-3	Water	07/05/16 14:30	07/07/16 09:25
280-85298-10	DBF-MW-3	Water	07/06/16 11:45	07/07/16 09:25
280-85298-11	DBF-MW-4	Water	07/06/16 12:35	07/07/16 09:25
280-85298-12	FB-7	Water	07/06/16 11:54	07/07/16 09:25
280-85298-13	DBF-MW-5	Water	07/06/16 13:35	07/07/16 09:25
280-85298-14	DBF-MW-1	Water	07/06/16 14:17	07/07/16 09:25

Detection Summary

Client: HDR Inc
Project/Site: Stewart International Airport (PFAS)

TestAmerica Job ID: 280-85298-1

Client Sample ID: SWF-OF-013 — Lab Sample ID: 280-85298-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutane Sulfonate (PFBS)	0.020	F1 *	0.020	0.0081	ug/L	1		DV-LC-0012	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.024	J	0.030	0.013	ug/L	1		DV-LC-0012	Total/NA
Perfluorohexane Sulfonate (PFHxS)	0.17		0.030	0.0069	ug/L	1		DV-LC-0012	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.13	F1	0.030	0.013	ug/L	1		DV-LC-0012	Total/NA
Perfluorooctanoic acid (PFOA)	0.040		0.020	0.0096	ug/L	1		DV-LC-0012	Total/NA
Perfluorobutane Sulfonate (PFBS) - RE	0.024	H	0.020	0.0081	ug/L	1		DV-LC-0012	Total/NA
Perfluoroheptanoic acid (PFHpA) - RE	0.026	J H	0.029	0.013	ug/L	1		DV-LC-0012	Total/NA
Perfluorohexane Sulfonate (PFHxS) - RE	0.20	H	0.029	0.0068	ug/L	1		DV-LC-0012	Total/NA
Perfluorooctanesulfonic acid (PFOS) - RE	0.14	H F1 F2	0.029	0.013	ug/L	1		DV-LC-0012	Total/NA
Perfluorooctanoic acid (PFOA) - RE	0.048	H	0.020	0.0096	ug/L	1		DV-LC-0012	Total/NA

Client Sample ID: SWF-OF — Lab Sample ID: 280-85298-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexane Sulfonate (PFHxS)	0.015	J	0.030	0.0069	ug/L	1		DV-LC-0012	Total/NA
Perfluorohexane Sulfonate (PFHxS) - RE	0.017	J H	0.027	0.0063	ug/L	1		DV-LC-0012	Total/NA

Client Sample ID: SWF-OF-011 — Lab Sample ID: 280-85298-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexane Sulfonate (PFHxS)	0.014	J	0.029	0.0068	ug/L	1		DV-LC-0012	Total/NA
Perfluorohexane Sulfonate (PFHxS) - RE	0.017	J H	0.030	0.0070	ug/L	1		DV-LC-0012	Total/NA

Client Sample ID: SWF-OF-008 — Lab Sample ID: 280-85298-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutane Sulfonate (PFBS)	0.015	J *	0.020	0.0081	ug/L	1		DV-LC-0012	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.021	J	0.030	0.013	ug/L	1		DV-LC-0012	Total/NA
Perfluorohexane Sulfonate (PFHxS)	0.12		0.030	0.0069	ug/L	1		DV-LC-0012	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.28		0.030	0.013	ug/L	1		DV-LC-0012	Total/NA
Perfluorooctanoic acid (PFOA)	0.026		0.020	0.0097	ug/L	1		DV-LC-0012	Total/NA
Perfluorobutane Sulfonate (PFBS) - RE	0.023	H	0.018	0.0075	ug/L	1		DV-LC-0012	Total/NA
Perfluoroheptanoic acid (PFHpA) - RE	0.022	J H	0.027	0.012	ug/L	1		DV-LC-0012	Total/NA
Perfluorohexane Sulfonate (PFHxS) - RE	0.16	H	0.027	0.0063	ug/L	1		DV-LC-0012	Total/NA
Perfluorooctanesulfonic acid (PFOS) - RE	0.34	H	0.027	0.012	ug/L	1		DV-LC-0012	Total/NA
Perfluorooctanoic acid (PFOA) - RE	0.032	H	0.018	0.0089	ug/L	1		DV-LC-0012	Total/NA

Client Sample ID: SWF-OF-010 — Lab Sample ID: 280-85298-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	0.035		0.030	0.013	ug/L	1		DV-LC-0012	Total/NA
Perfluorohexane Sulfonate (PFHxS)	0.080		0.030	0.0070	ug/L	1		DV-LC-0012	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.14		0.030	0.013	ug/L	1		DV-LC-0012	Total/NA
Perfluorooctanoic acid (PFOA)	0.037		0.020	0.0098	ug/L	1		DV-LC-0012	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: SWF-OF-010 (Continued) — Lab Sample ID: 280-85298-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutane Sulfonate (PFBS) - RE	0.0088	J H	0.018	0.0075	ug/L	1		DV-LC-0012	Total/NA
Perfluoroheptanoic acid (PFHpA) - RE	0.035	H	0.027	0.012	ug/L	1		DV-LC-0012	Total/NA
Perfluorohexane Sulfonate (PFHxS) - RE	0.11	H	0.027	0.0064	ug/L	1		DV-LC-0012	Total/NA
Perfluorooctanesulfonic acid (PFOS) - RE	0.17	H	0.027	0.012	ug/L	1		DV-LC-0012	Total/NA
Perfluorooctanoic acid (PFOA) - RE	0.044	H	0.018	0.0090	ug/L	1		DV-LC-0012	Total/NA

Client Sample ID: SWF-OF-005 — Lab Sample ID: 280-85298-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	0.019	J	0.030	0.013	ug/L	1		DV-LC-0012	Total/NA
Perfluorooctanesulfonic acid (PFOS) - RE	0.017	J H	0.029	0.013	ug/L	1		DV-LC-0012	Total/NA

Client Sample ID: SWF-OF-003 — Lab Sample ID: 280-85298-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	0.015	J	0.031	0.014	ug/L	1		DV-LC-0012	Total/NA
Perfluorohexane Sulfonate (PFHxS)	0.021	J	0.031	0.0071	ug/L	1		DV-LC-0012	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.047		0.031	0.014	ug/L	1		DV-LC-0012	Total/NA
Perfluorooctanoic acid (PFOA)	0.015	J	0.021	0.010	ug/L	1		DV-LC-0012	Total/NA
Perfluoroheptanoic acid (PFHpA) - RE	0.018	J H	0.029	0.013	ug/L	1		DV-LC-0012	Total/NA
Perfluorohexane Sulfonate (PFHxS) - RE	0.025	J H	0.029	0.0068	ug/L	1		DV-LC-0012	Total/NA
Perfluorooctanesulfonic acid (PFOS) - RE	0.067	H	0.029	0.013	ug/L	1		DV-LC-0012	Total/NA
Perfluorooctanoic acid (PFOA) - RE	0.019	H	0.019	0.0095	ug/L	1		DV-LC-0012	Total/NA

Client Sample ID: SWF-FB-6 — Lab Sample ID: 280-85298-8

No Detections.

Client Sample ID: SWF-WB-3 — Lab Sample ID: 280-85298-9

No Detections.

Client Sample ID: DBF-MW-3 — Lab Sample ID: 280-85298-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutane Sulfonate (PFBS)	0.039	*	0.020	0.0082	ug/L	1		DV-LC-0012	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.060		0.030	0.013	ug/L	1		DV-LC-0012	Total/NA
Perfluorohexane Sulfonate (PFHxS)	0.39		0.030	0.0069	ug/L	1		DV-LC-0012	Total/NA
Perfluorononanoic acid (PFNA)	0.061		0.040	0.017	ug/L	1		DV-LC-0012	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.34		0.030	0.013	ug/L	1		DV-LC-0012	Total/NA
Perfluorooctanoic acid (PFOA)	0.60		0.020	0.0097	ug/L	1		DV-LC-0012	Total/NA
Perfluorobutane Sulfonate (PFBS) - RE	0.050	H	0.019	0.0078	ug/L	1		DV-LC-0012	Total/NA
Perfluoroheptanoic acid (PFHpA) - RE	0.063	H	0.028	0.013	ug/L	1		DV-LC-0012	Total/NA
Perfluorohexane Sulfonate (PFHxS) - RE	0.50	H	0.028	0.0066	ug/L	1		DV-LC-0012	Total/NA
Perfluorononanoic acid (PFNA) - RE	0.066	H	0.038	0.016	ug/L	1		DV-LC-0012	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: DBF-MW-3 (Continued) — Lab Sample ID: 280-85298-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS) - RE	0.38	H	0.028	0.013	ug/L	1		DV-LC-0012	Total/NA
Perfluorooctanoic acid (PFOA) - RE	0.74	H	0.019	0.0093	ug/L	1		DV-LC-0012	Total/NA

Client Sample ID: DBF-MW-4 — Lab Sample ID: 280-85298-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutane Sulfonate (PFBS)	0.032	*	0.020	0.0083	ug/L	1		DV-LC-0012	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.13		0.030	0.013	ug/L	1		DV-LC-0012	Total/NA
Perfluorohexane Sulfonate (PFHxS)	0.28		0.030	0.0070	ug/L	1		DV-LC-0012	Total/NA
Perfluorononanoic acid (PFNA)	0.037	J	0.040	0.017	ug/L	1		DV-LC-0012	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.12		0.030	0.013	ug/L	1		DV-LC-0012	Total/NA
Perfluorooctanoic acid (PFOA)	0.54		0.020	0.0098	ug/L	1		DV-LC-0012	Total/NA
Perfluorobutane Sulfonate (PFBS) - RE	0.043	H	0.022	0.0089	ug/L	1		DV-LC-0012	Total/NA
Perfluoroheptanoic acid (PFHpA) - RE	0.12	H	0.032	0.014	ug/L	1		DV-LC-0012	Total/NA
Perfluorohexane Sulfonate (PFHxS) - RE	0.37	H	0.032	0.0075	ug/L	1		DV-LC-0012	Total/NA
Perfluorononanoic acid (PFNA) - RE	0.043	H	0.043	0.019	ug/L	1		DV-LC-0012	Total/NA
Perfluorooctanesulfonic acid (PFOS) - RE	0.14	H	0.032	0.014	ug/L	1		DV-LC-0012	Total/NA
Perfluorooctanoic acid (PFOA) - RE	0.63	H	0.022	0.011	ug/L	1		DV-LC-0012	Total/NA

Client Sample ID: FB-7 — Lab Sample ID: 280-85298-12

No Detections.

Client Sample ID: DBF-MW-5 — Lab Sample ID: 280-85298-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	0.034		0.027	0.012	ug/L	1		DV-LC-0012	Total/NA

Client Sample ID: DBF-MW-1 — Lab Sample ID: 280-85298-14

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: HDR Inc
Project/Site: Stewart International Airport (PFAS)

TestAmerica Job ID: 280-85298-1

Method	Method Description	Protocol	Laboratory
DV-LC-0012	Perfluorinated Hydrocarbons	TAL-DEN	TAL DEN

Protocol References:

TAL-DEN = TestAmerica Laboratories, Denver, Facility Standard Operating Procedure.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Client Sample ID: SWF-OF-013

Lab Sample ID: 280-85298-1

Date Collected: 07/05/16 11:05

Matrix: Water

Date Received: 07/07/16 09:25

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	**0.020**	**F1 ***	0.020	0.0081	ug/L		07/16/16 07:25	07/18/16 20:54	1
Perfluoroheptanoic acid (PFHpA)	**0.024**	**J**	0.030	0.013	ug/L		07/16/16 07:25	07/18/16 20:54	1
Perfluorohexane Sulfonate (PFHxS)	**0.17**		0.030	0.0069	ug/L		07/16/16 07:25	07/18/16 20:54	1
Perfluorononanoic acid (PFNA)	0.017	U	0.039	0.017	ug/L		07/16/16 07:25	07/18/16 20:54	1
Perfluorooctanesulfonic acid (PFOS)	**0.13**	**F1**	0.030	0.013	ug/L		07/16/16 07:25	07/18/16 20:54	1
Perfluorooctanoic acid (PFOA)	**0.040**		0.020	0.0096	ug/L		07/16/16 07:25	07/18/16 20:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*101*		*60 - 155*	*07/16/16 07:25*	*07/18/16 20:54*	*1*
13C8 PFOS	*97*		*45 - 130*	*07/16/16 07:25*	*07/18/16 20:54*	*1*

Method: DV-LC-0012 - Perfluorinated Hydrocarbons - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	**0.024**	**H**	0.020	0.0081	ug/L		07/25/16 10:50	07/28/16 18:45	1
Perfluoroheptanoic acid (PFHpA)	**0.026**	**J H**	0.029	0.013	ug/L		07/25/16 10:50	07/28/16 18:45	1
Perfluorohexane Sulfonate (PFHxS)	**0.20**	**H**	0.029	0.0068	ug/L		07/25/16 10:50	07/28/16 18:45	1
Perfluorononanoic acid (PFNA)	0.017	U H	0.039	0.017	ug/L		07/25/16 10:50	07/28/16 18:45	1
Perfluorooctanesulfonic acid (PFOS)	**0.14**	**H F1 F2**	0.029	0.013	ug/L		07/25/16 10:50	07/28/16 18:45	1
Perfluorooctanoic acid (PFOA)	**0.048**	**H**	0.020	0.0096	ug/L		07/25/16 10:50	07/28/16 18:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*102*		*60 - 155*	*07/25/16 10:50*	*07/28/16 18:45*	*1*
13C8 PFOS	*104*		*45 - 130*	*07/25/16 10:50*	*07/28/16 18:45*	*1*

Client Sample ID: SWF-OF

Lab Sample ID: 280-85298-2

Date Collected: 07/05/16 11:30

Matrix: Water

Date Received: 07/07/16 09:25

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.0082	U *	0.020	0.0082	ug/L		07/16/16 07:25	07/18/16 21:43	1
Perfluoroheptanoic acid (PFHpA)	0.013	U	0.030	0.013	ug/L		07/16/16 07:25	07/18/16 21:43	1
Perfluorohexane Sulfonate (PFHxS)	**0.015**	**J**	0.030	0.0069	ug/L		07/16/16 07:25	07/18/16 21:43	1
Perfluorononanoic acid (PFNA)	0.017	U	0.040	0.017	ug/L		07/16/16 07:25	07/18/16 21:43	1
Perfluorooctanesulfonic acid (PFOS)	0.013	U	0.030	0.013	ug/L		07/16/16 07:25	07/18/16 21:43	1
Perfluorooctanoic acid (PFOA)	0.0097	U	0.020	0.0097	ug/L		07/16/16 07:25	07/18/16 21:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*103*		*60 - 155*	*07/16/16 07:25*	*07/18/16 21:43*	*1*
13C8 PFOS	*97*		*45 - 130*	*07/16/16 07:25*	*07/18/16 21:43*	*1*

Method: DV-LC-0012 - Perfluorinated Hydrocarbons - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.0075	U H	0.018	0.0075	ug/L		07/25/16 10:50	07/28/16 19:22	1
Perfluoroheptanoic acid (PFHpA)	0.012	U H	0.027	0.012	ug/L		07/25/16 10:50	07/28/16 19:22	1
Perfluorohexane Sulfonate (PFHxS)	**0.017**	**J H**	0.027	0.0063	ug/L		07/25/16 10:50	07/28/16 19:22	1

Client Sample ID: SWF-OF

Date Collected: 07/05/16 11:30
Date Received: 07/07/16 09:25

Lab Sample ID: 280-85298-2

Matrix: Water

Method: DV-LC-0012 - Perfluorinated Hydrocarbons - RE (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	0.016	U H	0.036	0.016	ug/L		07/25/16 10:50	07/28/16 19:22	1
Perfluorooctanesulfonic acid (PFOS)	0.012	U H	0.027	0.012	ug/L		07/25/16 10:50	07/28/16 19:22	1
Perfluorooctanoic acid (PFOA)	0.0089	U H	0.018	0.0089	ug/L		07/25/16 10:50	07/28/16 19:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*104*		*60 - 155*	*07/25/16 10:50*	*07/28/16 19:22*	*1*
13C8 PFOS	*100*		*45 - 130*	*07/25/16 10:50*	*07/28/16 19:22*	*1*

Client Sample ID: SWF-OF-011

Date Collected: 07/05/16 11:40
Date Received: 07/07/16 09:25

Lab Sample ID: 280-85298-3

Matrix: Water

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.0081	U *	0.020	0.0081	ug/L		07/16/16 07:25	07/18/16 21:55	1
Perfluoroheptanoic acid (PFHpA)	0.013	U	0.029	0.013	ug/L		07/16/16 07:25	07/18/16 21:55	1
Perfluorohexane Sulfonate (PFHxS)	**0.014**	**J**	0.029	0.0068	ug/L		07/16/16 07:25	07/18/16 21:55	1
Perfluorononanoic acid (PFNA)	0.017	U	0.039	0.017	ug/L		07/16/16 07:25	07/18/16 21:55	1
Perfluorooctanesulfonic acid (PFOS)	0.013	U	0.029	0.013	ug/L		07/16/16 07:25	07/18/16 21:55	1
Perfluorooctanoic acid (PFOA)	0.0096	U	0.020	0.0096	ug/L		07/16/16 07:25	07/18/16 21:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*102*		*60 - 155*	*07/16/16 07:25*	*07/18/16 21:55*	*1*
13C8 PFOS	*99*		*45 - 130*	*07/16/16 07:25*	*07/18/16 21:55*	*1*

Method: DV-LC-0012 - Perfluorinated Hydrocarbons - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.0082	U H	0.020	0.0082	ug/L		07/25/16 10:50	07/28/16 19:35	1
Perfluoroheptanoic acid (PFHpA)	0.013	U H	0.030	0.013	ug/L		07/25/16 10:50	07/28/16 19:35	1
Perfluorohexane Sulfonate (PFHxS)	**0.017**	**J H**	0.030	0.0070	ug/L		07/25/16 10:50	07/28/16 19:35	1
Perfluorononanoic acid (PFNA)	0.017	U H	0.040	0.017	ug/L		07/25/16 10:50	07/28/16 19:35	1
Perfluorooctanesulfonic acid (PFOS)	0.013	U H	0.030	0.013	ug/L		07/25/16 10:50	07/28/16 19:35	1
Perfluorooctanoic acid (PFOA)	0.0098	U H	0.020	0.0098	ug/L		07/25/16 10:50	07/28/16 19:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*106*		*60 - 155*	*07/25/16 10:50*	*07/28/16 19:35*	*1*
13C8 PFOS	*100*		*45 - 130*	*07/25/16 10:50*	*07/28/16 19:35*	*1*

Client Sample ID: SWF-OF-008

Date Collected: 07/05/16 12:05
Date Received: 07/07/16 09:25

Lab Sample ID: 280-85298-4

Matrix: Water

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	**0.015**	**J ***	0.020	0.0081	ug/L		07/16/16 07:25	07/18/16 22:07	1
Perfluoroheptanoic acid (PFHpA)	**0.021**	**J**	0.030	0.013	ug/L		07/16/16 07:25	07/18/16 22:07	1
Perfluorohexane Sulfonate (PFHxS)	**0.12**		0.030	0.0069	ug/L		07/16/16 07:25	07/18/16 22:07	1
Perfluorononanoic acid (PFNA)	0.017	U	0.040	0.017	ug/L		07/16/16 07:25	07/18/16 22:07	1

Client Sample ID: SWF-OF-008

Date Collected: 07/05/16 12:05
Date Received: 07/07/16 09:25

Lab Sample ID: 280-85298-4

Matrix: Water

Method: DV-LC-0012 - Perfluorinated Hydrocarbons (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**0.28**		0.030	0.013	ug/L		07/16/16 07:25	07/18/16 22:07	1
Perfluorooctanoic acid (PFOA)	**0.026**		0.020	0.0097	ug/L		07/16/16 07:25	07/18/16 22:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*102*		*60 - 155*	*07/16/16 07:25*	*07/18/16 22:07*	*1*
13C8 PFOS	*102*		*45 - 130*	*07/16/16 07:25*	*07/18/16 22:07*	*1*

Method: DV-LC-0012 - Perfluorinated Hydrocarbons - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	**0.023**	**H**	0.018	0.0075	ug/L		07/25/16 10:50	07/28/16 19:47	1
Perfluoroheptanoic acid (PFHpA)	**0.022**	**J H**	0.027	0.012	ug/L		07/25/16 10:50	07/28/16 19:47	1
Perfluorohexane Sulfonate (PFHxS)	**0.16**	**H**	0.027	0.0063	ug/L		07/25/16 10:50	07/28/16 19:47	1
Perfluorononanoic acid (PFNA)	0.016	U H	0.036	0.016	ug/L		07/25/16 10:50	07/28/16 19:47	1
Perfluorooctanesulfonic acid (PFOS)	**0.34**	**H**	0.027	0.012	ug/L		07/25/16 10:50	07/28/16 19:47	1
Perfluorooctanoic acid (PFOA)	**0.032**	**H**	0.018	0.0089	ug/L		07/25/16 10:50	07/28/16 19:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*103*		*60 - 155*	*07/25/16 10:50*	*07/28/16 19:47*	*1*
13C8 PFOS	*101*		*45 - 130*	*07/25/16 10:50*	*07/28/16 19:47*	*1*

Client Sample ID: SWF-OF-010

Date Collected: 07/05/16 12:35
Date Received: 07/07/16 09:25

Lab Sample ID: 280-85298-5

Matrix: Water

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.0082	U *	0.020	0.0082	ug/L		07/16/16 07:25	07/18/16 22:20	1
Perfluoroheptanoic acid (PFHpA)	**0.035**		0.030	0.013	ug/L		07/16/16 07:25	07/18/16 22:20	1
Perfluorohexane Sulfonate (PFHxS)	**0.080**		0.030	0.0070	ug/L		07/16/16 07:25	07/18/16 22:20	1
Perfluorononanoic acid (PFNA)	0.017	U	0.040	0.017	ug/L		07/16/16 07:25	07/18/16 22:20	1
Perfluorooctanesulfonic acid (PFOS)	**0.14**		0.030	0.013	ug/L		07/16/16 07:25	07/18/16 22:20	1
Perfluorooctanoic acid (PFOA)	**0.037**		0.020	0.0098	ug/L		07/16/16 07:25	07/18/16 22:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*103*		*60 - 155*	*07/16/16 07:25*	*07/18/16 22:20*	*1*
13C8 PFOS	*99*		*45 - 130*	*07/16/16 07:25*	*07/18/16 22:20*	*1*

Method: DV-LC-0012 - Perfluorinated Hydrocarbons - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	**0.0088**	**J H**	0.018	0.0075	ug/L		07/25/16 10:50	07/28/16 20:11	1
Perfluoroheptanoic acid (PFHpA)	**0.035**	**H**	0.027	0.012	ug/L		07/25/16 10:50	07/28/16 20:11	1
Perfluorohexane Sulfonate (PFHxS)	**0.11**	**H**	0.027	0.0064	ug/L		07/25/16 10:50	07/28/16 20:11	1
Perfluorononanoic acid (PFNA)	0.016	U H	0.037	0.016	ug/L		07/25/16 10:50	07/28/16 20:11	1
Perfluorooctanesulfonic acid (PFOS)	**0.17**	**H**	0.027	0.012	ug/L		07/25/16 10:50	07/28/16 20:11	1
Perfluorooctanoic acid (PFOA)	**0.044**	**H**	0.018	0.0090	ug/L		07/25/16 10:50	07/28/16 20:11	1

Client Sample ID: SWF-OF-010

Date Collected: 07/05/16 12:35
Date Received: 07/07/16 09:25

Lab Sample ID: 280-85298-5

Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	107		60 - 155	07/25/16 10:50	07/28/16 20:11	1
13C8 PFOS	98		45 - 130	07/25/16 10:50	07/28/16 20:11	1

Client Sample ID: SWF-OF-005

Date Collected: 07/05/16 13:00
Date Received: 07/07/16 09:25

Lab Sample ID: 280-85298-6

Matrix: Water

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.0082	U *	0.020	0.0082	ug/L		07/16/16 07:25	07/18/16 22:32	1
Perfluoroheptanoic acid (PFHpA)	0.013	U	0.030	0.013	ug/L		07/16/16 07:25	07/18/16 22:32	1
Perfluorohexane Sulfonate (PFHxS)	0.0070	U	0.030	0.0070	ug/L		07/16/16 07:25	07/18/16 22:32	1
Perfluorononanoic acid (PFNA)	0.017	U	0.040	0.017	ug/L		07/16/16 07:25	07/18/16 22:32	1
Perfluorooctanesulfonic acid (PFOS)	**0.019**	**J**	0.030	0.013	ug/L		07/16/16 07:25	07/18/16 22:32	1
Perfluorooctanoic acid (PFOA)	0.0098	U	0.020	0.0098	ug/L		07/16/16 07:25	07/18/16 22:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	102		60 - 155	07/16/16 07:25	07/18/16 22:32	1
13C8 PFOS	105		45 - 130	07/16/16 07:25	07/18/16 22:32	1

Method: DV-LC-0012 - Perfluorinated Hydrocarbons - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.0081	U H	0.020	0.0081	ug/L		07/25/16 10:50	07/28/16 20:24	1
Perfluoroheptanoic acid (PFHpA)	0.013	U H	0.029	0.013	ug/L		07/25/16 10:50	07/28/16 20:24	1
Perfluorohexane Sulfonate (PFHxS)	0.0068	U H	0.029	0.0068	ug/L		07/25/16 10:50	07/28/16 20:24	1
Perfluorononanoic acid (PFNA)	0.017	U H	0.039	0.017	ug/L		07/25/16 10:50	07/28/16 20:24	1
Perfluorooctanesulfonic acid (PFOS)	**0.017**	**J H**	0.029	0.013	ug/L		07/25/16 10:50	07/28/16 20:24	1
Perfluorooctanoic acid (PFOA)	0.0096	U H	0.020	0.0096	ug/L		07/25/16 10:50	07/28/16 20:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	105		60 - 155	07/25/16 10:50	07/28/16 20:24	1
13C8 PFOS	103		45 - 130	07/25/16 10:50	07/28/16 20:24	1

Client Sample ID: SWF-OF-003

Date Collected: 07/05/16 13:25
Date Received: 07/07/16 09:25

Lab Sample ID: 280-85298-7

Matrix: Water

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.0084	U *	0.021	0.0084	ug/L		07/16/16 07:25	07/18/16 22:44	1
Perfluoroheptanoic acid (PFHpA)	**0.015**	**J**	0.031	0.014	ug/L		07/16/16 07:25	07/18/16 22:44	1
Perfluorohexane Sulfonate (PFHxS)	**0.021**	**J**	0.031	0.0071	ug/L		07/16/16 07:25	07/18/16 22:44	1
Perfluorononanoic acid (PFNA)	0.018	U	0.041	0.018	ug/L		07/16/16 07:25	07/18/16 22:44	1
Perfluorooctanesulfonic acid (PFOS)	**0.047**		0.031	0.014	ug/L		07/16/16 07:25	07/18/16 22:44	1
Perfluorooctanoic acid (PFOA)	**0.015**	**J**	0.021	0.010	ug/L		07/16/16 07:25	07/18/16 22:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	105		60 - 155	07/16/16 07:25	07/18/16 22:44	1

Client Sample ID: SWF-OF-003
Lab Sample ID: 280-85298-7
Date Collected: 07/05/16 13:25
Matrix: Water
Date Received: 07/07/16 09:25

Method: DV-LC-0012 - Perfluorinated Hydrocarbons (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOS	98		45 - 130	07/16/16 07:25	07/18/16 22:44	1

Method: DV-LC-0012 - Perfluorinated Hydrocarbons - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.0080	U H	0.019	0.0080	ug/L		07/25/16 10:50	07/28/16 20:36	1
Perfluoroheptanoic acid (PFHpA)	**0.018**	**J H**	0.029	0.013	ug/L		07/25/16 10:50	07/28/16 20:36	1
Perfluorohexane Sulfonate (PFHxS)	**0.025**	**J H**	0.029	0.0068	ug/L		07/25/16 10:50	07/28/16 20:36	1
Perfluorononanoic acid (PFNA)	0.017	U H	0.039	0.017	ug/L		07/25/16 10:50	07/28/16 20:36	1
Perfluorooctanesulfonic acid (PFOS)	**0.067**	**H**	0.029	0.013	ug/L		07/25/16 10:50	07/28/16 20:36	1
Perfluorooctanoic acid (PFOA)	**0.019**	**H**	0.019	0.0095	ug/L		07/25/16 10:50	07/28/16 20:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	103		60 - 155	07/25/16 10:50	07/28/16 20:36	1
13C8 PFOS	102		45 - 130	07/25/16 10:50	07/28/16 20:36	1

Client Sample ID: SWF-FB-6
Lab Sample ID: 280-85298-8
Date Collected: 07/05/16 14:00
Matrix: Water
Date Received: 07/07/16 09:25

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.0083	U *	0.020	0.0083	ug/L		07/16/16 07:25	07/18/16 22:57	1
Perfluoroheptanoic acid (PFHpA)	0.013	U	0.030	0.013	ug/L		07/16/16 07:25	07/18/16 22:57	1
Perfluorohexane Sulfonate (PFHxS)	0.0070	U	0.030	0.0070	ug/L		07/16/16 07:25	07/18/16 22:57	1
Perfluorononanoic acid (PFNA)	0.017	U	0.040	0.017	ug/L		07/16/16 07:25	07/18/16 22:57	1
Perfluorooctanesulfonic acid (PFOS)	0.013	U	0.030	0.013	ug/L		07/16/16 07:25	07/18/16 22:57	1
Perfluorooctanoic acid (PFOA)	0.0098	U	0.020	0.0098	ug/L		07/16/16 07:25	07/18/16 22:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	105		60 - 155	07/16/16 07:25	07/18/16 22:57	1
13C8 PFOS	98		45 - 130	07/16/16 07:25	07/18/16 22:57	1

Method: DV-LC-0012 - Perfluorinated Hydrocarbons - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.0076	U H	0.018	0.0076	ug/L		07/25/16 10:50	07/28/16 20:48	1
Perfluoroheptanoic acid (PFHpA)	0.012	U H	0.028	0.012	ug/L		07/25/16 10:50	07/28/16 20:48	1
Perfluorohexane Sulfonate (PFHxS)	0.0064	U H	0.028	0.0064	ug/L		07/25/16 10:50	07/28/16 20:48	1
Perfluorononanoic acid (PFNA)	0.016	U H	0.037	0.016	ug/L		07/25/16 10:50	07/28/16 20:48	1
Perfluorooctanesulfonic acid (PFOS)	0.012	U H	0.028	0.012	ug/L		07/25/16 10:50	07/28/16 20:48	1
Perfluorooctanoic acid (PFOA)	0.0090	U H	0.018	0.0090	ug/L		07/25/16 10:50	07/28/16 20:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	104		60 - 155	07/25/16 10:50	07/28/16 20:48	1
13C8 PFOS	101		45 - 130	07/25/16 10:50	07/28/16 20:48	1

Client Sample ID: SWF-WB-3

Lab Sample ID: 280-85298-9

Date Collected: 07/05/16 14:30

Matrix: Water

Date Received: 07/07/16 09:25

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.0083	U *	0.020	0.0083	ug/L		07/16/16 07:25	07/18/16 23:09	1
Perfluoroheptanoic acid (PFHpA)	0.013	U	0.030	0.013	ug/L		07/16/16 07:25	07/18/16 23:09	1
Perfluorohexane Sulfonate (PFHxS)	0.0070	U	0.030	0.0070	ug/L		07/16/16 07:25	07/18/16 23:09	1
Perfluorononanoic acid (PFNA)	0.018	U	0.040	0.018	ug/L		07/16/16 07:25	07/18/16 23:09	1
Perfluorooctanesulfonic acid (PFOS)	0.013	U	0.030	0.013	ug/L		07/16/16 07:25	07/18/16 23:09	1
Perfluorooctanoic acid (PFOA)	0.0099	U	0.020	0.0099	ug/L		07/16/16 07:25	07/18/16 23:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*100*		*60 - 155*	*07/16/16 07:25*	*07/18/16 23:09*	*1*
13C8 PFOS	*100*		*45 - 130*	*07/16/16 07:25*	*07/18/16 23:09*	*1*

Method: DV-LC-0012 - Perfluorinated Hydrocarbons - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.0076	U H	0.018	0.0076	ug/L		07/25/16 10:50	07/28/16 21:01	1
Perfluoroheptanoic acid (PFHpA)	0.012	U H	0.028	0.012	ug/L		07/25/16 10:50	07/28/16 21:01	1
Perfluorohexane Sulfonate (PFHxS)	0.0064	U H	0.028	0.0064	ug/L		07/25/16 10:50	07/28/16 21:01	1
Perfluorononanoic acid (PFNA)	0.016	U H	0.037	0.016	ug/L		07/25/16 10:50	07/28/16 21:01	1
Perfluorooctanesulfonic acid (PFOS)	0.012	U H	0.028	0.012	ug/L		07/25/16 10:50	07/28/16 21:01	1
Perfluorooctanoic acid (PFOA)	0.0090	U H	0.018	0.0090	ug/L		07/25/16 10:50	07/28/16 21:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*100*		*60 - 155*	*07/25/16 10:50*	*07/28/16 21:01*	*1*
13C8 PFOS	*103*		*45 - 130*	*07/25/16 10:50*	*07/28/16 21:01*	*1*

Client Sample ID: DBF-MW-3

Lab Sample ID: 280-85298-10

Date Collected: 07/06/16 11:45

Matrix: Water

Date Received: 07/07/16 09:25

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	**0.039**	*	0.020	0.0082	ug/L		07/16/16 07:25	07/18/16 23:21	1
Perfluoroheptanoic acid (PFHpA)	**0.060**		0.030	0.013	ug/L		07/16/16 07:25	07/18/16 23:21	1
Perfluorohexane Sulfonate (PFHxS)	**0.39**		0.030	0.0069	ug/L		07/16/16 07:25	07/18/16 23:21	1
Perfluorononanoic acid (PFNA)	**0.061**		0.040	0.017	ug/L		07/16/16 07:25	07/18/16 23:21	1
Perfluorooctanesulfonic acid (PFOS)	**0.34**		0.030	0.013	ug/L		07/16/16 07:25	07/18/16 23:21	1
Perfluorooctanoic acid (PFOA)	**0.60**		0.020	0.0097	ug/L		07/16/16 07:25	07/18/16 23:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*99*		*60 - 155*	*07/16/16 07:25*	*07/18/16 23:21*	*1*
13C8 PFOS	*98*		*45 - 130*	*07/16/16 07:25*	*07/18/16 23:21*	*1*

Method: DV-LC-0012 - Perfluorinated Hydrocarbons - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	**0.050**	**H**	0.019	0.0078	ug/L		07/25/16 10:50	07/28/16 21:13	1
Perfluoroheptanoic acid (PFHpA)	**0.063**	**H**	0.028	0.013	ug/L		07/25/16 10:50	07/28/16 21:13	1
Perfluorohexane Sulfonate (PFHxS)	**0.50**	**H**	0.028	0.0066	ug/L		07/25/16 10:50	07/28/16 21:13	1
Perfluorononanoic acid (PFNA)	**0.066**	**H**	0.038	0.016	ug/L		07/25/16 10:50	07/28/16 21:13	1
Perfluorooctanesulfonic acid (PFOS)	**0.38**	**H**	0.028	0.013	ug/L		07/25/16 10:50	07/28/16 21:13	1

Client Sample ID: DBF-MW-3

Lab Sample ID: 280-85298-10
Date Collected: 07/06/16 11:45
Matrix: Water
Date Received: 07/07/16 09:25

Method: DV-LC-0012 - Perfluorinated Hydrocarbons - RE (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.74	H	0.019	0.0093	ug/L		07/25/16 10:50	07/28/16 21:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*107*		*60 - 155*	*07/25/16 10:50*	*07/28/16 21:13*	*1*
13C8 PFOS	*99*		*45 - 130*	*07/25/16 10:50*	*07/28/16 21:13*	*1*

Client Sample ID: DBF-MW-4

Lab Sample ID: 280-85298-11
Date Collected: 07/06/16 12:35
Matrix: Water
Date Received: 07/07/16 09:25

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.032	*	0.020	0.0083	ug/L		07/16/16 07:25	07/20/16 18:40	1
Perfluoroheptanoic acid (PFHpA)	0.13		0.030	0.013	ug/L		07/16/16 07:25	07/20/16 18:40	1
Perfluorohexane Sulfonate (PFHxS)	0.28		0.030	0.0070	ug/L		07/16/16 07:25	07/20/16 18:40	1
Perfluorononanoic acid (PFNA)	0.037	J	0.040	0.017	ug/L		07/16/16 07:25	07/20/16 18:40	1
Perfluorooctanesulfonic acid (PFOS)	0.12		0.030	0.013	ug/L		07/16/16 07:25	07/20/16 18:40	1
Perfluorooctanoic acid (PFOA)	0.54		0.020	0.0098	ug/L		07/16/16 07:25	07/20/16 18:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*102*		*60 - 155*	*07/16/16 07:25*	*07/20/16 18:40*	*1*
13C8 PFOS	*104*		*45 - 130*	*07/16/16 07:25*	*07/20/16 18:40*	*1*

Method: DV-LC-0012 - Perfluorinated Hydrocarbons - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.043	H	0.022	0.0089	ug/L		07/25/16 10:50	07/28/16 21:25	1
Perfluoroheptanoic acid (PFHpA)	0.12	H	0.032	0.014	ug/L		07/25/16 10:50	07/28/16 21:25	1
Perfluorohexane Sulfonate (PFHxS)	0.37	H	0.032	0.0075	ug/L		07/25/16 10:50	07/28/16 21:25	1
Perfluorononanoic acid (PFNA)	0.043	H	0.043	0.019	ug/L		07/25/16 10:50	07/28/16 21:25	1
Perfluorooctanesulfonic acid (PFOS)	0.14	H	0.032	0.014	ug/L		07/25/16 10:50	07/28/16 21:25	1
Perfluorooctanoic acid (PFOA)	0.63	H	0.022	0.011	ug/L		07/25/16 10:50	07/28/16 21:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*106*		*60 - 155*	*07/25/16 10:50*	*07/28/16 21:25*	*1*
13C8 PFOS	*105*		*45 - 130*	*07/25/16 10:50*	*07/28/16 21:25*	*1*

Client Sample ID: FB-7

Lab Sample ID: 280-85298-12
Date Collected: 07/06/16 11:54
Matrix: Water
Date Received: 07/07/16 09:25

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.0083	U *	0.020	0.0083	ug/L		07/16/16 07:25	07/20/16 18:52	1
Perfluoroheptanoic acid (PFHpA)	0.013	U	0.030	0.013	ug/L		07/16/16 07:25	07/20/16 18:52	1
Perfluorohexane Sulfonate (PFHxS)	0.0070	U	0.030	0.0070	ug/L		07/16/16 07:25	07/20/16 18:52	1
Perfluorononanoic acid (PFNA)	0.017	U	0.040	0.017	ug/L		07/16/16 07:25	07/20/16 18:52	1
Perfluorooctanesulfonic acid (PFOS)	0.013	U	0.030	0.013	ug/L		07/16/16 07:25	07/20/16 18:52	1
Perfluorooctanoic acid (PFOA)	0.0098	U	0.020	0.0098	ug/L		07/16/16 07:25	07/20/16 18:52	1

Client Sample ID: FB-7
Lab Sample ID: 280-85298-12
Date Collected: 07/06/16 11:54
Matrix: Water
Date Received: 07/07/16 09:25

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*104*		*60 - 155*	*07/16/16 07:25*	*07/20/16 18:52*	*1*
13C8 PFOS	*104*		*45 - 130*	*07/16/16 07:25*	*07/20/16 18:52*	*1*

Method: DV-LC-0012 - Perfluorinated Hydrocarbons - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.0086	U H	0.021	0.0086	ug/L		07/25/16 10:50	07/28/16 21:38	1
Perfluoroheptanoic acid (PFHpA)	0.014	U H	0.031	0.014	ug/L		07/25/16 10:50	07/28/16 21:38	1
Perfluorohexane Sulfonate (PFHxS)	0.0073	U H	0.031	0.0073	ug/L		07/25/16 10:50	07/28/16 21:38	1
Perfluorononanoic acid (PFNA)	0.018	U H	0.042	0.018	ug/L		07/25/16 10:50	07/28/16 21:38	1
Perfluorooctanesulfonic acid (PFOS)	0.014	U H	0.031	0.014	ug/L		07/25/16 10:50	07/28/16 21:38	1
Perfluorooctanoic acid (PFOA)	0.010	U H	0.021	0.010	ug/L		07/25/16 10:50	07/28/16 21:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*104*		*60 - 155*	*07/25/16 10:50*	*07/28/16 21:38*	*1*
13C8 PFOS	*100*		*45 - 130*	*07/25/16 10:50*	*07/28/16 21:38*	*1*

Client Sample ID: DBF-MW-5
Lab Sample ID: 280-85298-13
Date Collected: 07/06/16 13:35
Matrix: Water
Date Received: 07/07/16 09:25

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.0075	U *	0.018	0.0075	ug/L		07/16/16 07:25	07/20/16 19:04	1
Perfluoroheptanoic acid (PFHpA)	**0.034**		0.027	0.012	ug/L		07/16/16 07:25	07/20/16 19:04	1
Perfluorohexane Sulfonate (PFHxS)	0.0064	U	0.027	0.0064	ug/L		07/16/16 07:25	07/20/16 19:04	1
Perfluorononanoic acid (PFNA)	0.016	U	0.037	0.016	ug/L		07/16/16 07:25	07/20/16 19:04	1
Perfluorooctanesulfonic acid (PFOS)	0.012	U	0.027	0.012	ug/L		07/16/16 07:25	07/20/16 19:04	1
Perfluorooctanoic acid (PFOA)	0.0089	U	0.018	0.0089	ug/L		07/16/16 07:25	07/20/16 19:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*105*		*60 - 155*	*07/16/16 07:25*	*07/20/16 19:04*	*1*
13C8 PFOS	*113*		*45 - 130*	*07/16/16 07:25*	*07/20/16 19:04*	*1*

Method: DV-LC-0012 - Perfluorinated Hydrocarbons - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.0079	U H	0.019	0.0079	ug/L		07/25/16 10:50	07/28/16 22:02	1
Perfluoroheptanoic acid (PFHpA)	0.013	U H	0.029	0.013	ug/L		07/25/16 10:50	07/28/16 22:02	1
Perfluorohexane Sulfonate (PFHxS)	0.0067	U H	0.029	0.0067	ug/L		07/25/16 10:50	07/28/16 22:02	1
Perfluorononanoic acid (PFNA)	0.017	U H	0.038	0.017	ug/L		07/25/16 10:50	07/28/16 22:02	1
Perfluorooctanesulfonic acid (PFOS)	0.013	U H	0.029	0.013	ug/L		07/25/16 10:50	07/28/16 22:02	1
Perfluorooctanoic acid (PFOA)	0.0094	U H	0.019	0.0094	ug/L		07/25/16 10:50	07/28/16 22:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*107*		*60 - 155*	*07/25/16 10:50*	*07/28/16 22:02*	*1*
13C8 PFOS	*103*		*45 - 130*	*07/25/16 10:50*	*07/28/16 22:02*	*1*

Client Sample ID: DBF-MW-1
Lab Sample ID: 280-85298-14

Date Collected: 07/06/16 14:17
Matrix: Water

Date Received: 07/07/16 09:25

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.0075	U *	0.018	0.0075	ug/L		07/16/16 07:25	07/20/16 19:17	1
Perfluoroheptanoic acid (PFHpA)	0.012	U	0.027	0.012	ug/L		07/16/16 07:25	07/20/16 19:17	1
Perfluorohexane Sulfonate (PFHxS)	0.0063	U	0.027	0.0063	ug/L		07/16/16 07:25	07/20/16 19:17	1
Perfluorononanoic acid (PFNA)	0.016	U	0.036	0.016	ug/L		07/16/16 07:25	07/20/16 19:17	1
Perfluorooctanesulfonic acid (PFOS)	0.012	U	0.027	0.012	ug/L		07/16/16 07:25	07/20/16 19:17	1
Perfluorooctanoic acid (PFOA)	0.0089	U	0.018	0.0089	ug/L		07/16/16 07:25	07/20/16 19:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*103*		*60 - 155*	*07/16/16 07:25*	*07/20/16 19:17*	*1*
13C8 PFOS	*100*		*45 - 130*	*07/16/16 07:25*	*07/20/16 19:17*	*1*

Method: DV-LC-0012 - Perfluorinated Hydrocarbons - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.0080	U H	0.020	0.0080	ug/L		07/25/16 10:50	07/28/16 22:15	1
Perfluoroheptanoic acid (PFHpA)	0.013	U H	0.029	0.013	ug/L		07/25/16 10:50	07/28/16 22:15	1
Perfluorohexane Sulfonate (PFHxS)	0.0068	U H	0.029	0.0068	ug/L		07/25/16 10:50	07/28/16 22:15	1
Perfluorononanoic acid (PFNA)	0.017	U H	0.039	0.017	ug/L		07/25/16 10:50	07/28/16 22:15	1
Perfluorooctanesulfonic acid (PFOS)	0.013	U H	0.029	0.013	ug/L		07/25/16 10:50	07/28/16 22:15	1
Perfluorooctanoic acid (PFOA)	0.0096	U H	0.020	0.0096	ug/L		07/25/16 10:50	07/28/16 22:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*104*		*60 - 155*	*07/25/16 10:50*	*07/28/16 22:15*	*1*
13C8 PFOS	*109*		*45 - 130*	*07/25/16 10:50*	*07/28/16 22:15*	*1*

Surrogate Summary

Client: HDR Inc
Project/Site: Stewart International Airport (PFAS)

TestAmerica Job ID: 280-85298-1

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	3C8 PFO/ (60-155)	3C8 PFOS (45-130)								
280-85298-1	SWF-OF-013	101	97								
280-85298-1 - RE	SWF-OF-013	102	104								
280-85298-1 MS	SWF-OF-013	101	101								
280-85298-1 MS - RE	SWF-OF-013	107	100								
280-85298-1 MSD	SWF-OF-013	105	102								
280-85298-1 MSD - RE	SWF-OF-013	106	96								
280-85298-2	SWF-OF	103	97								
280-85298-2 - RE	SWF-OF	104	100								
280-85298-3	SWF-OF-011	102	99								
280-85298-3 - RE	SWF-OF-011	106	100								
280-85298-4	SWF-OF-008	102	102								
280-85298-4 - RE	SWF-OF-008	103	101								
280-85298-5	SWF-OF-010	103	99								
280-85298-5 - RE	SWF-OF-010	107	98								
280-85298-6	SWF-OF-005	102	105								
280-85298-6 - RE	SWF-OF-005	105	103								
280-85298-7	SWF-OF-003	105	98								
280-85298-7 - RE	SWF-OF-003	103	102								
280-85298-8	SWF-FB-6	105	98								
280-85298-8 - RE	SWF-FB-6	104	101								
280-85298-9	SWF-WB-3	100	100								
280-85298-9 - RE	SWF-WB-3	100	103								
280-85298-10	DBF-MW-3	99	98								
280-85298-10 - RE	DBF-MW-3	107	99								
280-85298-11	DBF-MW-4	102	104								
280-85298-11 - RE	DBF-MW-4	106	105								
280-85298-12	FB-7	104	104								
280-85298-12 - RE	FB-7	104	100								
280-85298-13	DBF-MW-5	105	113								
280-85298-13 - RE	DBF-MW-5	107	103								
280-85298-14	DBF-MW-1	103	100								
280-85298-14 - RE	DBF-MW-1	104	109								
DLCK 280-328740/14	Lab Control Sample	105	106								
LCS 280-333869/2-A	Lab Control Sample	103	99								
LCS 280-334942/2-A	Lab Control Sample	102	104								
MB 280-333869/1-A	Method Blank	103	98								
MB 280-334942/1-A	Method Blank	107	101								

Surrogate Legend

13C8 PFOA = 13C8 PFOA
13C8 PFOS = 13C8 PFOS

Method: DV-LC-0012 - Perfluorinated Hydrocarbons

Lab Sample ID: DLCK 280-328740/14
Matrix: Water
Analysis Batch: 328740

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	DLCK Result	DLCK Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutane Sulfonate (PFBS)	0.443	0.419		ug/L		95	70 - 130
Perfluoroheptanoic acid (PFHpA)	0.500	0.433		ug/L		87	70 - 130
Perfluorohexane Sulfonate (PFHxS)	0.473	0.446		ug/L		94	70 - 130
Perfluorononanoic acid (PFNA)	0.500	0.439		ug/L		88	70 - 130
Perfluorooctanesulfonic acid (PFOS)	0.478	0.456		ug/L		95	70 - 130
Perfluorooctanoic acid (PFOA)	0.500	0.459		ug/L		92	70 - 130

Surrogate	*DLCK %Recovery*	*DLCK Qualifier*	*Limits*
13C8 PFOA	*105*		*60 - 155*
13C8 PFOS	*106*		*45 - 130*

Lab Sample ID: MB 280-333869/1-A
Matrix: Water
Analysis Batch: 334166

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 333869

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.0082	U	0.020	0.0082	ug/L		07/16/16 07:25	07/18/16 20:29	1
Perfluoroheptanoic acid (PFHpA)	0.013	U	0.030	0.013	ug/L		07/16/16 07:25	07/18/16 20:29	1
Perfluorohexane Sulfonate (PFHxS)	0.0070	U	0.030	0.0070	ug/L		07/16/16 07:25	07/18/16 20:29	1
Perfluorononanoic acid (PFNA)	0.017	U	0.040	0.017	ug/L		07/16/16 07:25	07/18/16 20:29	1
Perfluorooctanesulfonic acid (PFOS)	0.013	U	0.030	0.013	ug/L		07/16/16 07:25	07/18/16 20:29	1
Perfluorooctanoic acid (PFOA)	0.0098	U	0.020	0.0098	ug/L		07/16/16 07:25	07/18/16 20:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*103*		*60 - 155*	*07/16/16 07:25*	*07/18/16 20:29*	*1*
13C8 PFOS	*98*		*45 - 130*	*07/16/16 07:25*	*07/18/16 20:29*	*1*

Lab Sample ID: LCS 280-333869/2-A
Matrix: Water
Analysis Batch: 334166

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 333869

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutane Sulfonate (PFBS)	0.161	0.111	*	ug/L		69	70 - 134
Perfluoroheptanoic acid (PFHpA)	0.182	0.165		ug/L		91	70 - 135
Perfluorohexane Sulfonate (PFHxS)	0.172	0.137		ug/L		80	70 - 132
Perfluorononanoic acid (PFNA)	0.182	0.143		ug/L		79	69 - 143
Perfluorooctanesulfonic acid (PFOS)	0.174	0.128		ug/L		73	70 - 130
Perfluorooctanoic acid (PFOA)	0.182	0.154		ug/L		85	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 PFOA	*103*		*60 - 155*
13C8 PFOS	*99*		*45 - 130*

Method: DV-LC-0012 - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: 280-85298-1 MS
Matrix: Water
Analysis Batch: 334166

Client Sample ID: SWF-OF-013
Prep Type: Total/NA
Prep Batch: 333869

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutane Sulfonate (PFBS)	0.020	F1 *	0.161	0.133		ug/L		70	70 - 134
Perfluoroheptanoic acid (PFHpA)	0.024	J	0.182	0.181		ug/L		86	70 - 135
Perfluorohexane Sulfonate (PFHxS)	0.17		0.172	0.336		ug/L		94	70 - 132
Perfluorononanoic acid (PFNA)	0.017	U	0.182	0.145		ug/L		80	69 - 143
Perfluorooctanesulfonic acid (PFOS)	0.13	F1	0.174	0.361	F1	ug/L		135	70 - 130
Perfluorooctanoic acid (PFOA)	0.040		0.182	0.197		ug/L		86	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
13C8 PFOA	*101*		*60 - 155*
13C8 PFOS	*101*		*45 - 130*

Lab Sample ID: 280-85298-1 MSD
Matrix: Water
Analysis Batch: 334166

Client Sample ID: SWF-OF-013
Prep Type: Total/NA
Prep Batch: 333869

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutane Sulfonate (PFBS)	0.020	F1 *	0.162	0.132	F1	ug/L		69	70 - 134	0	30
Perfluoroheptanoic acid (PFHpA)	0.024	J	0.183	0.194		ug/L		93	70 - 135	7	30
Perfluorohexane Sulfonate (PFHxS)	0.17		0.173	0.335		ug/L		93	70 - 132	0	30
Perfluorononanoic acid (PFNA)	0.017	U	0.183	0.151		ug/L		82	69 - 143	4	30
Perfluorooctanesulfonic acid (PFOS)	0.13	F1	0.175	0.266		ug/L		80	70 - 130	30	30
Perfluorooctanoic acid (PFOA)	0.040		0.183	0.199		ug/L		87	70 - 130	1	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
13C8 PFOA	*105*		*60 - 155*
13C8 PFOS	*102*		*45 - 130*

Lab Sample ID: MB 280-334942/1-A
Matrix: Water
Analysis Batch: 335652

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 334942

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutane Sulfonate (PFBS)	0.0082	U	0.020	0.0082	ug/L		07/25/16 10:50	07/28/16 18:21	1
Perfluoroheptanoic acid (PFHpA)	0.013	U	0.030	0.013	ug/L		07/25/16 10:50	07/28/16 18:21	1
Perfluorohexane Sulfonate (PFHxS)	0.0070	U	0.030	0.0070	ug/L		07/25/16 10:50	07/28/16 18:21	1
Perfluorononanoic acid (PFNA)	0.017	U	0.040	0.017	ug/L		07/25/16 10:50	07/28/16 18:21	1
Perfluorooctanesulfonic acid (PFOS)	0.013	U	0.030	0.013	ug/L		07/25/16 10:50	07/28/16 18:21	1
Perfluorooctanoic acid (PFOA)	0.0098	U	0.020	0.0098	ug/L		07/25/16 10:50	07/28/16 18:21	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*107*		*60 - 155*	*07/25/16 10:50*	*07/28/16 18:21*	*1*
13C8 PFOS	*101*		*45 - 130*	*07/25/16 10:50*	*07/28/16 18:21*	*1*

Method: DV-LC-0012 - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: LCS 280-334942/2-A
Matrix: Water
Analysis Batch: 335652

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 334942

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutane Sulfonate (PFBS)	0.161	0.143		ug/L		89	70 - 134
Perfluoroheptanoic acid (PFHpA)	0.182	0.171		ug/L		94	70 - 135
Perfluorohexane Sulfonate (PFHxS)	0.172	0.174		ug/L		101	70 - 132
Perfluorononanoic acid (PFNA)	0.182	0.170		ug/L		93	69 - 143
Perfluorooctanesulfonic acid (PFOS)	0.174	0.163		ug/L		94	70 - 130
Perfluorooctanoic acid (PFOA)	0.182	0.180		ug/L		99	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 PFOA	*102*		*60 - 155*
13C8 PFOS	*104*		*45 - 130*

Method: DV-LC-0012 - Perfluorinated Hydrocarbons - RE

Lab Sample ID: 280-85298-1 MS
Matrix: Water
Analysis Batch: 335652

Client Sample ID: SWF-OF-013
Prep Type: Total/NA
Prep Batch: 334942

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutane Sulfonate (PFBS) - RE	0.024	H	0.149	0.159	H	ug/L		91	70 - 134
Perfluoroheptanoic acid (PFHpA) - RE	0.026	J H	0.168	0.196	H	ug/L		100	70 - 135
Perfluorohexane Sulfonate (PFHxS) - RE	0.20	H	0.159	0.374	H	ug/L		110	70 - 132
Perfluorononanoic acid (PFNA) - RE	0.017	U H	0.168	0.161	H	ug/L		96	69 - 143
Perfluorooctanesulfonic acid (PFOS) - RE	0.14	H F1 F2	0.161	0.447	H F1	ug/L		189	70 - 130
Perfluorooctanoic acid (PFOA) - RE	0.048	H	0.168	0.223	H	ug/L		104	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
13C8 PFOA - RE	*107*		*60 - 155*
13C8 PFOS - RE	*100*		*45 - 130*

Lab Sample ID: 280-85298-1 MSD
Matrix: Water
Analysis Batch: 335652

Client Sample ID: SWF-OF-013
Prep Type: Total/NA
Prep Batch: 334942

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutane Sulfonate (PFBS) - RE	0.024	H	0.150	0.166	H	ug/L		94	70 - 134	4	30
Perfluoroheptanoic acid (PFHpA) - RE	0.026	J H	0.170	0.185	H	ug/L		93	70 - 135	5	30
Perfluorohexane Sulfonate (PFHxS) - RE	0.20	H	0.161	0.405	H	ug/L		128	70 - 132	8	30

Method: DV-LC-0012 - Perfluorinated Hydrocarbons - RE (Continued)

Lab Sample ID: 280-85298-1 MSD
Matrix: Water
Analysis Batch: 335652

Client Sample ID: SWF-OF-013
Prep Type: Total/NA
Prep Batch: 334942

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorononanoic acid (PFNA) - RE	0.017	U H	0.170	0.163	H	ug/L		96	69 - 143	2	30
Perfluorooctanesulfonic acid (PFOS) - RE	0.14	H F1 F2	0.162	0.298	H F2	ug/L		95	70 - 130	40	30
Perfluorooctanoic acid (PFOA) - RE	0.048	H	0.170	0.231	H	ug/L		108	70 - 130	4	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
13C8 PFOA - RE	*106*		*60 - 155*
13C8 PFOS - RE	*96*		*45 - 130*

Qualifiers

LCMS

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
F1	MS and/or MSD Recovery is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.
H	Sample was prepped or analyzed beyond the specified holding time
F2	MS/MSD RPD exceeds control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

LCMS

Analysis Batch: 328740

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
DLCK 280-328740/14	Lab Control Sample	Total/NA	Water	DV-LC-0012	

Prep Batch: 333869

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-85298-1	SWF-OF-013	Total/NA	Water	3535	
280-85298-2	SWF-OF	Total/NA	Water	3535	
280-85298-3	SWF-OF-011	Total/NA	Water	3535	
280-85298-4	SWF-OF-008	Total/NA	Water	3535	
280-85298-5	SWF-OF-010	Total/NA	Water	3535	
280-85298-6	SWF-OF-005	Total/NA	Water	3535	
280-85298-7	SWF-OF-003	Total/NA	Water	3535	
280-85298-8	SWF-FB-6	Total/NA	Water	3535	
280-85298-9	SWF-WB-3	Total/NA	Water	3535	
280-85298-10	DBF-MW-3	Total/NA	Water	3535	
280-85298-11	DBF-MW-4	Total/NA	Water	3535	
280-85298-12	FB-7	Total/NA	Water	3535	
280-85298-13	DBF-MW-5	Total/NA	Water	3535	
280-85298-14	DBF-MW-1	Total/NA	Water	3535	
MB 280-333869/1-A	Method Blank	Total/NA	Water	3535	
LCS 280-333869/2-A	Lab Control Sample	Total/NA	Water	3535	
280-85298-1 MS	SWF-OF-013	Total/NA	Water	3535	
280-85298-1 MSD	SWF-OF-013	Total/NA	Water	3535	

Analysis Batch: 334166

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-85298-1	SWF-OF-013	Total/NA	Water	DV-LC-0012	333869
280-85298-2	SWF-OF	Total/NA	Water	DV-LC-0012	333869
280-85298-3	SWF-OF-011	Total/NA	Water	DV-LC-0012	333869
280-85298-4	SWF-OF-008	Total/NA	Water	DV-LC-0012	333869
280-85298-5	SWF-OF-010	Total/NA	Water	DV-LC-0012	333869
280-85298-6	SWF-OF-005	Total/NA	Water	DV-LC-0012	333869
280-85298-7	SWF-OF-003	Total/NA	Water	DV-LC-0012	333869
280-85298-8	SWF-FB-6	Total/NA	Water	DV-LC-0012	333869
280-85298-9	SWF-WB-3	Total/NA	Water	DV-LC-0012	333869
280-85298-10	DBF-MW-3	Total/NA	Water	DV-LC-0012	333869
MB 280-333869/1-A	Method Blank	Total/NA	Water	DV-LC-0012	333869
LCS 280-333869/2-A	Lab Control Sample	Total/NA	Water	DV-LC-0012	333869
280-85298-1 MS	SWF-OF-013	Total/NA	Water	DV-LC-0012	333869
280-85298-1 MSD	SWF-OF-013	Total/NA	Water	DV-LC-0012	333869

Analysis Batch: 334502

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-85298-11	DBF-MW-4	Total/NA	Water	DV-LC-0012	333869
280-85298-12	FB-7	Total/NA	Water	DV-LC-0012	333869
280-85298-13	DBF-MW-5	Total/NA	Water	DV-LC-0012	333869
280-85298-14	DBF-MW-1	Total/NA	Water	DV-LC-0012	333869

Prep Batch: 334942

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-85298-1 - RE	SWF-OF-013	Total/NA	Water	3535	
280-85298-2 - RE	SWF-OF	Total/NA	Water	3535	

LCMS (Continued)

Prep Batch: 334942 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-85298-3 - RE	SWF-OF-011	Total/NA	Water	3535	
280-85298-4 - RE	SWF-OF-008	Total/NA	Water	3535	
280-85298-5 - RE	SWF-OF-010	Total/NA	Water	3535	
280-85298-6 - RE	SWF-OF-005	Total/NA	Water	3535	
280-85298-7 - RE	SWF-OF-003	Total/NA	Water	3535	
280-85298-8 - RE	SWF-FB-6	Total/NA	Water	3535	
280-85298-9 - RE	SWF-WB-3	Total/NA	Water	3535	
280-85298-10 - RE	DBF-MW-3	Total/NA	Water	3535	
280-85298-11 - RE	DBF-MW-4	Total/NA	Water	3535	
280-85298-12 - RE	FB-7	Total/NA	Water	3535	
280-85298-13 - RE	DBF-MW-5	Total/NA	Water	3535	
280-85298-14 - RE	DBF-MW-1	Total/NA	Water	3535	
MB 280-334942/1-A	Method Blank	Total/NA	Water	3535	
LCS 280-334942/2-A	Lab Control Sample	Total/NA	Water	3535	
280-85298-1 MS - RE	SWF-OF-013	Total/NA	Water	3535	
280-85298-1 MSD - RE	SWF-OF-013	Total/NA	Water	3535	

Analysis Batch: 335652

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-85298-1 - RE	SWF-OF-013	Total/NA	Water	DV-LC-0012	334942
280-85298-2 - RE	SWF-OF	Total/NA	Water	DV-LC-0012	334942
280-85298-3 - RE	SWF-OF-011	Total/NA	Water	DV-LC-0012	334942
280-85298-4 - RE	SWF-OF-008	Total/NA	Water	DV-LC-0012	334942
280-85298-5 - RE	SWF-OF-010	Total/NA	Water	DV-LC-0012	334942
280-85298-6 - RE	SWF-OF-005	Total/NA	Water	DV-LC-0012	334942
280-85298-7 - RE	SWF-OF-003	Total/NA	Water	DV-LC-0012	334942
280-85298-8 - RE	SWF-FB-6	Total/NA	Water	DV-LC-0012	334942
280-85298-9 - RE	SWF-WB-3	Total/NA	Water	DV-LC-0012	334942
280-85298-10 - RE	DBF-MW-3	Total/NA	Water	DV-LC-0012	334942
280-85298-11 - RE	DBF-MW-4	Total/NA	Water	DV-LC-0012	334942
280-85298-12 - RE	FB-7	Total/NA	Water	DV-LC-0012	334942
280-85298-13 - RE	DBF-MW-5	Total/NA	Water	DV-LC-0012	334942
280-85298-14 - RE	DBF-MW-1	Total/NA	Water	DV-LC-0012	334942
MB 280-334942/1-A	Method Blank	Total/NA	Water	DV-LC-0012	334942
LCS 280-334942/2-A	Lab Control Sample	Total/NA	Water	DV-LC-0012	334942
280-85298-1 MS - RE	SWF-OF-013	Total/NA	Water	DV-LC-0012	334942
280-85298-1 MSD - RE	SWF-OF-013	Total/NA	Water	DV-LC-0012	334942

Client Sample ID: SWF-OF-013
Date Collected: 07/05/16 11:05
Date Received: 07/07/16 09:25

Lab Sample ID: 280-85298-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			253.9 mL	5 mL	333869	07/16/16 07:25	ACF	TAL DEN
Total/NA	Analysis	DV-LC-0012		1			334166	07/18/16 20:54	HKF	TAL DEN
Total/NA	Prep	3535	RE		255.4 mL	5 mL	334942	07/25/16 10:50	YJC	TAL DEN
Total/NA	Analysis	DV-LC-0012	RE	1			335652	07/28/16 18:45	AGCM	TAL DEN

Client Sample ID: SWF-OF
Date Collected: 07/05/16 11:30
Date Received: 07/07/16 09:25

Lab Sample ID: 280-85298-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			252 mL	5 mL	333869	07/16/16 07:25	ACF	TAL DEN
Total/NA	Analysis	DV-LC-0012		1			334166	07/18/16 21:43	HKF	TAL DEN
Total/NA	Prep	3535	RE		275.8 mL	5 mL	334942	07/25/16 10:50	YJC	TAL DEN
Total/NA	Analysis	DV-LC-0012	RE	1			335652	07/28/16 19:22	AGCM	TAL DEN

Client Sample ID: SWF-OF-011
Date Collected: 07/05/16 11:40
Date Received: 07/07/16 09:25

Lab Sample ID: 280-85298-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			255.3 mL	5 mL	333869	07/16/16 07:25	ACF	TAL DEN
Total/NA	Analysis	DV-LC-0012		1			334166	07/18/16 21:55	HKF	TAL DEN
Total/NA	Prep	3535	RE		250.1 mL	5 mL	334942	07/25/16 10:50	YJC	TAL DEN
Total/NA	Analysis	DV-LC-0012	RE	1			335652	07/28/16 19:35	AGCM	TAL DEN

Client Sample ID: SWF-OF-008
Date Collected: 07/05/16 12:05
Date Received: 07/07/16 09:25

Lab Sample ID: 280-85298-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			253 mL	5 mL	333869	07/16/16 07:25	ACF	TAL DEN
Total/NA	Analysis	DV-LC-0012		1			334166	07/18/16 22:07	HKF	TAL DEN
Total/NA	Prep	3535	RE		276.1 mL	5 mL	334942	07/25/16 10:50	YJC	TAL DEN
Total/NA	Analysis	DV-LC-0012	RE	1			335652	07/28/16 19:47	AGCM	TAL DEN

Client Sample ID: SWF-OF-010
Date Collected: 07/05/16 12:35
Date Received: 07/07/16 09:25

Lab Sample ID: 280-85298-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			250.1 mL	5 mL	333869	07/16/16 07:25	ACF	TAL DEN
Total/NA	Analysis	DV-LC-0012		1			334166	07/18/16 22:20	HKF	TAL DEN
Total/NA	Prep	3535	RE		273 mL	5 mL	334942	07/25/16 10:50	YJC	TAL DEN

Client Sample ID: SWF-OF-010
Date Collected: 07/05/16 12:35
Date Received: 07/07/16 09:25

Lab Sample ID: 280-85298-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	DV-LC-0012	RE	1			335652	07/28/16 20:11	AGCM	TAL DEN

Client Sample ID: SWF-OF-005
Date Collected: 07/05/16 13:00
Date Received: 07/07/16 09:25

Lab Sample ID: 280-85298-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			250.4 mL	5 mL	333869	07/16/16 07:25	ACF	TAL DEN
Total/NA	Analysis	DV-LC-0012		1			334166	07/18/16 22:32	HKF	TAL DEN
Total/NA	Prep	3535	RE		255.8 mL	5 mL	334942	07/25/16 10:50	YJC	TAL DEN
Total/NA	Analysis	DV-LC-0012	RE	1			335652	07/28/16 20:24	AGCM	TAL DEN

Client Sample ID: SWF-OF-003
Date Collected: 07/05/16 13:25
Date Received: 07/07/16 09:25

Lab Sample ID: 280-85298-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			243.9 mL	5 mL	333869	07/16/16 07:25	ACF	TAL DEN
Total/NA	Analysis	DV-LC-0012		1			334166	07/18/16 22:44	HKF	TAL DEN
Total/NA	Prep	3535	RE		257.4 mL	5 mL	334942	07/25/16 10:50	YJC	TAL DEN
Total/NA	Analysis	DV-LC-0012	RE	1			335652	07/28/16 20:36	AGCM	TAL DEN

Client Sample ID: SWF-FB-6
Date Collected: 07/05/16 14:00
Date Received: 07/07/16 09:25

Lab Sample ID: 280-85298-8
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			249.1 mL	5 mL	333869	07/16/16 07:25	ACF	TAL DEN
Total/NA	Analysis	DV-LC-0012		1			334166	07/18/16 22:57	HKF	TAL DEN
Total/NA	Prep	3535	RE		270.5 mL	5 mL	334942	07/25/16 10:50	YJC	TAL DEN
Total/NA	Analysis	DV-LC-0012	RE	1			335652	07/28/16 20:48	AGCM	TAL DEN

Client Sample ID: SWF-WB-3
Date Collected: 07/05/16 14:30
Date Received: 07/07/16 09:25

Lab Sample ID: 280-85298-9
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			248.3 mL	5 mL	333869	07/16/16 07:25	ACF	TAL DEN
Total/NA	Analysis	DV-LC-0012		1			334166	07/18/16 23:09	HKF	TAL DEN
Total/NA	Prep	3535	RE		272.5 mL	5 mL	334942	07/25/16 10:50	YJC	TAL DEN
Total/NA	Analysis	DV-LC-0012	RE	1			335652	07/28/16 21:01	AGCM	TAL DEN

Client Sample ID: DBF-MW-3
Date Collected: 07/06/16 11:45
Date Received: 07/07/16 09:25

Lab Sample ID: 280-85298-10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			251.3 mL	5 mL	333869	07/16/16 07:25	ACF	TAL DEN
Total/NA	Analysis	DV-LC-0012		1			334166	07/18/16 23:21	HKF	TAL DEN
Total/NA	Prep	3535	RE		263.9 mL	5 mL	334942	07/25/16 10:50	YJC	TAL DEN
Total/NA	Analysis	DV-LC-0012	RE	1			335652	07/28/16 21:13	AGCM	TAL DEN

Client Sample ID: DBF-MW-4
Date Collected: 07/06/16 12:35
Date Received: 07/07/16 09:25

Lab Sample ID: 280-85298-11
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			248.8 mL	5 mL	333869	07/16/16 07:25	ACF	TAL DEN
Total/NA	Analysis	DV-LC-0012		1			334502	07/20/16 18:40	AGCM	TAL DEN
Total/NA	Prep	3535	RE		231.2 mL	5 mL	334942	07/25/16 10:50	YJC	TAL DEN
Total/NA	Analysis	DV-LC-0012	RE	1			335652	07/28/16 21:25	AGCM	TAL DEN

Client Sample ID: FB-7
Date Collected: 07/06/16 11:54
Date Received: 07/07/16 09:25

Lab Sample ID: 280-85298-12
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			248.6 mL	5 mL	333869	07/16/16 07:25	ACF	TAL DEN
Total/NA	Analysis	DV-LC-0012		1			334502	07/20/16 18:52	AGCM	TAL DEN
Total/NA	Prep	3535	RE		238.2 mL	5 mL	334942	07/25/16 10:50	YJC	TAL DEN
Total/NA	Analysis	DV-LC-0012	RE	1			335652	07/28/16 21:38	AGCM	TAL DEN

Client Sample ID: DBF-MW-5
Date Collected: 07/06/16 13:35
Date Received: 07/07/16 09:25

Lab Sample ID: 280-85298-13
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			273.5 mL	5 mL	333869	07/16/16 07:25	ACF	TAL DEN
Total/NA	Analysis	DV-LC-0012		1			334502	07/20/16 19:04	AGCM	TAL DEN
Total/NA	Prep	3535	RE		259.9 mL	5 mL	334942	07/25/16 10:50	YJC	TAL DEN
Total/NA	Analysis	DV-LC-0012	RE	1			335652	07/28/16 22:02	AGCM	TAL DEN

Client Sample ID: DBF-MW-1
Date Collected: 07/06/16 14:17
Date Received: 07/07/16 09:25

Lab Sample ID: 280-85298-14
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			275.3 mL	5 mL	333869	07/16/16 07:25	ACF	TAL DEN
Total/NA	Analysis	DV-LC-0012		1			334502	07/20/16 19:17	AGCM	TAL DEN
Total/NA	Prep	3535	RE		256 mL	5 mL	334942	07/25/16 10:50	YJC	TAL DEN

Client Sample ID: DBF-MW-1

Date Collected: 07/06/16 14:17
Date Received: 07/07/16 09:25

Lab Sample ID: 280-85298-14

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	DV-LC-0012	RE	1			335652	07/28/16 22:15	AGCM	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Certification Summary

Client: HDR Inc
Project/Site: Stewart International Airport (PFAS)

TestAmerica Job ID: 280-85298-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
New York	NELAP	2	11964	04-01-17

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
DV-LC-0012	3535	Water	Perfluorobutane Sulfonate (PFBS)
DV-LC-0012	3535	Water	Perfluoroheptanoic acid (PFHpA)
DV-LC-0012	3535	Water	Perfluorohexane Sulfonate (PFHxS)
DV-LC-0012	3535	Water	Perfluorononanoic acid (PFNA)
DV-LC-0012	3535	Water	Perfluorooctanesulfonic acid (PFOS)
DV-LC-0012	3535	Water	Perfluorooctanoic acid (PFOA)

Oregon	NELAP	10	4025	01-09-17

Analysis Method	Prep Method	Matrix	Analyte

Laboratory: TestAmerica Sacramento

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Oregon	NELAP	10	4040	01-29-17

Method PFC

Perfluronated Hydrocarbons (LC/MS) by Method PFC

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): Gemini-NX ID:

Client Sample ID	Lab Sample ID	PFOA #	PFOS #
SWF-OF-013	280-85298-1	101	97
SWF-OF-013 RE	280-85298-1 RE	102	104
SWF-OF	280-85298-2	103	97
SWF-OF RE	280-85298-2 RE	104	100
SWF-OF-011	280-85298-3	102	99
SWF-OF-011 RE	280-85298-3 RE	106	100
SWF-OF-008	280-85298-4	102	102
SWF-OF-008 RE	280-85298-4 RE	103	101
SWF-OF-010	280-85298-5	103	99
SWF-OF-010 RE	280-85298-5 RE	107	98
SWF-OF-005	280-85298-6	102	105
SWF-OF-005 RE	280-85298-6 RE	105	103
SWF-OF-003	280-85298-7	105	98
SWF-OF-003 RE	280-85298-7 RE	103	102
SWF-FB-6	280-85298-8	105	98
SWF-FB-6 RE	280-85298-8 RE	104	101
SWF-WB-3	280-85298-9	100	100
SWF-WB-3 RE	280-85298-9 RE	100	103
DBF-MW-3	280-85298-10	99	98
DBF-MW-3 RE	280-85298-10 RE	107	99
DBF-MW-4	280-85298-11	102	104
DBF-MW-4 RE	280-85298-11 RE	106	105
FB-7	280-85298-12	104	104
FB-7 RE	280-85298-12 RE	104	100
DBF-MW-5	280-85298-13	105	113
DBF-MW-5 RE	280-85298-13 RE	107	103
DBF-MW-1	280-85298-14	103	100
DBF-MW-1 RE	280-85298-14 RE	104	109
	MB 280-333869/1-A	103	98
	MB 280-334942/1-A	107	101
	LCS 280-333869/2-A	103	99
	LCS 280-334942/2-A	102	104
SWF-OF-013 MS	280-85298-1 MS	101	101

	QC LIMITS
PFOA = 13C8 PFOA	60-155
PFOS = 13C8 PFOS	45-130

Column to be used to flag recovery values

FORM II DV-LC-0012

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): Gemini-NX ID:

Client Sample ID	Lab Sample ID	PFOA #	PFOS #
SWF-OF-013 MS RE	280-85298-1 MS RE	107	100
SWF-OF-013 MSD	280-85298-1 MSD	105	102
SWF-OF-013 MSD RE	280-85298-1 MSD RE	106	96
	DLCK 280-328740/14	105	106

	QC LIMITS
PFOA = 13C8 PFOA	60-155
PFOS = 13C8 PFOS	45-130

Column to be used to flag recovery values

FORM II DV-LC-0012

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Matrix: Water Level: Low Lab File ID: PC516G18044.d

Lab ID: LCS 280-333869/2-A Client ID:

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
Perfluorobutane Sulfonate (PFBS)	0.161	0.111	69	70-134	*
Perfluoroheptanoic acid (PFHpA)	0.182	0.165	91	70-135	
Perfluorohexane Sulfonate (PFHxS)	0.172	0.137	80	70-132	
Perfluorononanoic acid (PFNA)	0.182	0.143	79	69-143	
Perfluorooctanesulfonic acid (PFOS)	0.174	0.128	73	70-130	
Perfluorooctanoic acid (PFOA)	0.182	0.154	85	70-130	

Column to be used to flag recovery and RPD values

FORM III DV-LC-0012

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Matrix: Water Level: Low Lab File ID: PC516G28051.d

Lab ID: LCS 280-334942/2-A Client ID:

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
Perfluorobutane Sulfonate (PFBS)	0.161	0.143	89	70-134	
Perfluoroheptanoic acid (PFHpA)	0.182	0.171	94	70-135	
Perfluorohexane Sulfonate (PFHxS)	0.172	0.174	101	70-132	
Perfluorononanoic acid (PFNA)	0.182	0.170	93	69-143	
Perfluorooctanesulfonic acid (PFOS)	0.174	0.163	94	70-130	
Perfluorooctanoic acid (PFOA)	0.182	0.180	99	70-130	

Column to be used to flag recovery and RPD values

FORM III DV-LC-0012

FORM III
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Matrix: Water Level: Low Lab File ID: PC516G18046.d

Lab ID: 280-85298-1 MS Client ID: SWF-OF-013 MS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC	QC LIMITS REC	#
Perfluorobutane Sulfonate (PFBS)	0.161	0.020	0.133	70	70-134	
Perfluoroheptanoic acid (PFHpA)	0.182	0.024 J	0.181	86	70-135	
Perfluorohexane Sulfonate (PFHxS)	0.172	0.17	0.336	94	70-132	
Perfluorononanoic acid (PFNA)	0.182	0.017 U	0.145	80	69-143	
Perfluorooctanesulfonic acid (PFOS)	0.174	0.13	0.361	135	70-130	F1
Perfluorooctanoic acid (PFOA)	0.182	0.040	0.197	86	70-130	

Column to be used to flag recovery and RPD values

FORM III DV-LC-0012

FORM III
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Matrix: Water Level: Low Lab File ID: PC516G28053.d

Lab ID: 280-85298-1 MS RE Client ID: SWF-OF-013 MS RE

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC	QC LIMITS REC	#
Perfluorobutane Sulfonate (PFBS)	0.149	0.024	0.159	91	70-134	H
Perfluoroheptanoic acid (PFHpA)	0.168	0.026 J	0.196	100	70-135	H
Perfluorohexane Sulfonate (PFHxS)	0.159	0.20	0.374	110	70-132	H
Perfluorononanoic acid (PFNA)	0.168	0.017 U	0.161	96	69-143	H
Perfluorooctanesulfonic acid (PFOS)	0.161	0.14	0.447	189	70-130	H F1
Perfluorooctanoic acid (PFOA)	0.168	0.048	0.223	104	70-130	H

Column to be used to flag recovery and RPD values

FORM III DV-LC-0012

FORM III
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Matrix: Water Level: Low Lab File ID: PC516G18048.d

Lab ID: 280-85298-1 MSD Client ID: SWF-OF-013 MSD

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Perfluorobutane Sulfonate (PFBS)	0.162	0.132	69	0	30	70-134	F1
Perfluoroheptanoic acid (PFHpA)	0.183	0.194	93	7	30	70-135	
Perfluorohexane Sulfonate (PFHxS)	0.173	0.335	93	0	30	70-132	
Perfluorononanoic acid (PFNA)	0.183	0.151	82	4	30	69-143	
Perfluorooctanesulfonic acid (PFOS)	0.175	0.266	80	30	30	70-130	
Perfluorooctanoic acid (PFOA)	0.183	0.199	87	1	30	70-130	

Column to be used to flag recovery and RPD values

FORM III DV-LC-0012

FORM III
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Matrix: Water Level: Low Lab File ID: PC516G28054.d

Lab ID: 280-85298-1 MSD RE Client ID: SWF-OF-013 MSD RE

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Perfluorobutane Sulfonate (PFBS)	0.150	0.166	94	4	30	70-134	H
Perfluoroheptanoic acid (PFHpA)	0.170	0.185	93	5	30	70-135	H
Perfluorohexane Sulfonate (PFHxS)	0.161	0.405	128	8	30	70-132	H
Perfluorononanoic acid (PFNA)	0.170	0.163	96	2	30	69-143	H
Perfluorooctanesulfonic acid (PFOS)	0.162	0.298	95	40	30	70-130	H F2
Perfluorooctanoic acid (PFOA)	0.170	0.231	108	4	30	70-130	H

Column to be used to flag recovery and RPD values

FORM III DV-LC-0012

FORM III
LCMS DETECTION LIMIT CHECK STANDARD RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Matrix: Water Level: Low Lab File ID: PC516F06019.d

Lab ID: DLCK 280-328740/14 Client ID:

COMPOUND	SPIKE ADDED (ug/L)	DLCK CONCENTRATION (ug/L)	DLCK % REC	QC LIMITS REC	#
Perfluorobutane Sulfonate (PFBS)	0.443	0.419	95	70-130	
Perfluoroheptanoic acid (PFHpA)	0.500	0.433	87	70-130	
Perfluorohexane Sulfonate (PFHxS)	0.473	0.446	94	70-130	
Perfluorononanoic acid (PFNA)	0.500	0.439	88	70-130	
Perfluorooctanesulfonic acid (PFOS)	0.478	0.456	95	70-130	
Perfluorooctanoic acid (PFOA)	0.500	0.459	92	70-130	

Column to be used to flag recovery and RPD values

FORM III DV-LC-0012

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Lab File ID: PC516G18043.d Lab Sample ID: MB 280-333869/1-A

Matrix: Water Date Extracted: 07/16/2016 07:25

Instrument ID: LC_LCMS5 Date Analyzed: 07/18/2016 20:29

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 280-333869/2-A	PC516G18044.d	07/18/2016 20:41
SWF-OF-013	280-85298-1	PC516G18045.d	07/18/2016 20:54
SWF-OF-013 MS	280-85298-1 MS	PC516G18046.d	07/18/2016 21:06
SWF-OF-013 MSD	280-85298-1 MSD	PC516G18048.d	07/18/2016 21:31
SWF-OF	280-85298-2	PC516G18049.d	07/18/2016 21:43
SWF-OF-011	280-85298-3	PC516G18050.d	07/18/2016 21:55
SWF-OF-008	280-85298-4	PC516G18051.d	07/18/2016 22:07
SWF-OF-010	280-85298-5	PC516G18052.d	07/18/2016 22:20
SWF-OF-005	280-85298-6	PC516G18053.d	07/18/2016 22:32
SWF-OF-003	280-85298-7	PC516G18054.d	07/18/2016 22:44
SWF-FB-6	280-85298-8	PC516G18055.d	07/18/2016 22:57
SWF-WB-3	280-85298-9	PC516G18056.d	07/18/2016 23:09
DBF-MW-3	280-85298-10	PC516G18057.d	07/18/2016 23:21
DBF-MW-4	280-85298-11	PC516G20063.d	07/20/2016 18:40
FB-7	280-85298-12	PC516G20064.d	07/20/2016 18:52
DBF-MW-5	280-85298-13	PC516G20065.d	07/20/2016 19:04
DBF-MW-1	280-85298-14	PC516G20066.d	07/20/2016 19:17

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Lab File ID: PC516G28050.d Lab Sample ID: MB 280-334942/1-A

Matrix: Water Date Extracted: 07/25/2016 10:50

Instrument ID: LC_LCMS5 Date Analyzed: 07/28/2016 18:21

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 280-334942/2-A	PC516G28051.d	07/28/2016 18:33
SWF-OF-013 RE	280-85298-1 RE	PC516G28052.d	07/28/2016 18:45
SWF-OF-013 MS RE	280-85298-1 MS RE	PC516G28053.d	07/28/2016 18:58
SWF-OF-013 MSD RE	280-85298-1 MSD RE	PC516G28054.d	07/28/2016 19:10
SWF-OF RE	280-85298-2 RE	PC516G28055.d	07/28/2016 19:22
SWF-OF-011 RE	280-85298-3 RE	PC516G28056.d	07/28/2016 19:35
SWF-OF-008 RE	280-85298-4 RE	PC516G28057.d	07/28/2016 19:47
SWF-OF-010 RE	280-85298-5 RE	PC516G28059.d	07/28/2016 20:11
SWF-OF-005 RE	280-85298-6 RE	PC516G28060.d	07/28/2016 20:24
SWF-OF-003 RE	280-85298-7 RE	PC516G28061.d	07/28/2016 20:36
SWF-FB-6 RE	280-85298-8 RE	PC516G28062.d	07/28/2016 20:48
SWF-WB-3 RE	280-85298-9 RE	PC516G28063.d	07/28/2016 21:01
DBF-MW-3 RE	280-85298-10 RE	PC516G28064.d	07/28/2016 21:13
DBF-MW-4 RE	280-85298-11 RE	PC516G28065.d	07/28/2016 21:25
FB-7 RE	280-85298-12 RE	PC516G28066.d	07/28/2016 21:38
DBF-MW-5 RE	280-85298-13 RE	PC516G28068.d	07/28/2016 22:02
DBF-MW-1 RE	280-85298-14 RE	PC516G28069.d	07/28/2016 22:15

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Instrument ID: LC_LCMS5 Calibration Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calibration End Date: 06/06/2016 16:28

Calibration ID: 26146

		BA		HXA		HXS	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		27989040	4.19	22165860	5.83	2309602	6.26
UPPER LIMIT		41983560	4.69	33248790	6.33	3464403	6.76
LOWER LIMIT		13994520	3.69	11082930	5.33	1154801	5.76
LAB SAMPLE ID	CLIENT SAMPLE ID						
ICB 280-328740/12		28978482	4.19	21836187	5.96	2386106	6.43
ICV 280-328740/13		32017793	4.47	23574022	5.89	2511258	6.30
DLCK 280-328740/14		20323348	4.20	23600887	5.89	2616206	6.30
CCV 280-334166/31		35691996	4.33	16934336	5.93	1867122	6.37
MB 280-333869/1-A		33714047	4.14	21413746	5.82	2577733	6.25
LCS 280-333869/2-A		33371892	4.26	19876980	5.90	2449029	6.34
280-85298-1	SWF-OF-013	27232907	4.19	20938669	5.84	2514153	6.28
280-85298-1 MS	SWF-OF-013 MS	29192821	4.20	20845360	5.87	2452160	6.29
CCV 280-334166/42		29756750	4.28	17200070	5.89	2167079	6.33
280-85298-1 MSD	SWF-OF-013 MSD	29001665	4.22	20858762	5.88	2328268	6.31
280-85298-2	SWF-OF	33117332	4.22	19918571	5.88	2314144	6.30
280-85298-3	SWF-OF-011	35071191	4.08	22144720	5.76	2644435	6.21
280-85298-4	SWF-OF-008	34860677	4.12	22205171	5.79	2734442	6.23
280-85298-5	SWF-OF-010	31695726	4.17	19253489	5.84	2427311	6.27
280-85298-6	SWF-OF-005	31955064	4.13	20814021	5.82	2649644	6.25
280-85298-7	SWF-OF-003	31728812	4.17	20854341	5.84	2487755	6.27
280-85298-8	SWF-FB-6	31869435	4.15	19783776	5.83	2357006	6.27
280-85298-9	SWF-WB-3	34023190	4.14	20228164	5.82	2557043	6.25
280-85298-10	DBF-MW-3	33953373	4.02	21333806	5.73	2521471	6.18
CCV 280-334166/53		28011582	4.21	16670099	5.84	2165056	6.26
CCV 280-334502/3		29158172	4.12	18056458	5.71	2358399	6.14
280-85298-11	DBF-MW-4	32904539	3.91	20867824	5.65	2604123	6.09
280-85298-12	FB-7	35068857	3.92	22587385	5.65	2717274	6.08
280-85298-13	DBF-MW-5	34859309	3.91	22062410	5.65	2659528	6.09
280-85298-14	DBF-MW-1	33756719	3.89	21735761	5.63	2734237	6.08
CCV 280-334502/14		26990911	3.95	17951349	5.65	2259715	6.09
CCV 280-335652/3		19709172	4.07	17659237	5.72	2150239	6.17
MB 280-334942/1-A		22880791	3.95	17769832	5.68	2435007	6.12
LCS 280-334942/2-A		21200539	3.94	16635768	5.67	2081157	6.11
280-85298-1 RE	SWF-OF-013 RE	18070036	3.93	17181197	5.66	2178343	6.11

BA = 13C4 PFBA (IS)
HXA = 13C2 PFHxA (IS)
HXS = 18O2 PFHxS (IS)

Area Limit = 50%-150% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII DV-LC-0012

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Instrument ID: LC_LCMS5 Calibration Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calibration End Date: 06/06/2016 16:28

Calibration ID: 26146

		BA		HXA		HXS	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		27989040	4.19	22165860	5.83	2309602	6.26
UPPER LIMIT		41983560	4.69	33248790	6.33	3464403	6.76
LOWER LIMIT		13994520	3.69	11082930	5.33	1154801	5.76
LAB SAMPLE ID	CLIENT SAMPLE ID						
280-85298-1 MS RE	SWF-OF-013 MS RE	15110124	3.92	16014783	5.66	2027527	6.10
280-85298-1 MSD RE	SWF-OF-013 MSD RE	15821224	3.94	16707457	5.71	1907095	6.14
280-85298-2 RE	SWF-OF RE	21070128	3.95	17033971	5.69	2210636	6.13
280-85298-3 RE	SWF-OF-011 RE	20553600	3.90	15758007	5.65	2170847	6.09
280-85298-4 RE	SWF-OF-008 RE	20877059	3.96	16259169	5.67	1988150	6.10
CCV 280-335652/14		18735495	4.03	16035715	5.70	2101419	6.12
280-85298-5 RE	SWF-OF-010 RE	22663257	3.94	15162557	5.67	1907386	6.11
280-85298-6 RE	SWF-OF-005 RE	20871724	3.92	16472437	5.66	2032813	6.10
280-85298-7 RE	SWF-OF-003 RE	20993650	3.92	16292681	5.66	2198485	6.10
280-85298-8 RE	SWF-FB-6 RE	22041687	4.05	15955104	5.68	2104248	6.11
280-85298-9 RE	SWF-WB-3 RE	22207332	3.93	16459021	5.66	2009518	6.10
280-85298-10 RE	DBF-MW-3 RE	22592254	4.05	16873967	5.69	1986639	6.12
280-85298-11 RE	DBF-MW-4 RE	21025436	3.91	15003347	5.66	1854440	6.10
280-85298-12 RE	FB-7 RE	19962980	3.94	15709630	5.66	1953714	6.10
CCV 280-335652/23		17884272	4.02	15897210	5.68	2109417	6.11
280-85298-13 RE	DBF-MW-5 RE	21774643	4.02	16808904	5.68	2100327	6.10
280-85298-14 RE	DBF-MW-1 RE	21921360	4.05	15977211	5.70	2154768	6.12
CCV 280-335652/30		18010052	3.98	16584263	5.66	2179810	6.09

BA = 13C4 PFBA (IS)
HXA = 13C2 PFHxA (IS)
HXS = 18O2 PFHxS (IS)

Area Limit = 50%-150% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII DV-LC-0012

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Instrument ID: LC_LCMS5 Calibration Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calibration End Date: 06/06/2016 16:28

Calibration ID: 26146

		OA		PFOS		NA	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		29955425	6.60	8404326	6.87	21941427	6.89
UPPER LIMIT		44933138	7.10	12606489	7.37	32912141	7.39
LOWER LIMIT		14977713	6.10	4202163	6.37	10970714	6.39
LAB SAMPLE ID	CLIENT SAMPLE ID						
ICB 280-328740/12		34004746	6.78	9303800	7.07	25696131	7.09
ICV 280-328740/13		33074850	6.63	9669285	6.90	25183863	6.91
DLCK 280-328740/14		34601296	6.62	9456457	6.88	27571989	6.90
CCV 280-334166/31		27635223	6.70	7346439	6.97	21233302	6.99
MB 280-333869/1-A		32148880	6.59	8959720	6.86	25595939	6.88
LCS 280-333869/2-A		30053157	6.68	9176151	6.94	24934007	6.96
280-85298-1	SWF-OF-013	33732544	6.63	8147290	6.90	25169577	6.92
280-85298-1 MS	SWF-OF-013 MS	32171763	6.63	8433274	6.90	25016110	6.92
CCV 280-334166/42		26511189	6.67	7965260	6.93	21655694	6.95
280-85298-1 MSD	SWF-OF-013 MSD	30951551	6.65	8015666	6.91	24158903	6.93
280-85298-2	SWF-OF	30096619	6.64	7651995	6.90	24543527	6.93
280-85298-3	SWF-OF-011	33569051	6.55	8629794	6.81	27237328	6.83
280-85298-4	SWF-OF-008	34094340	6.57	8878148	6.84	26944060	6.85
280-85298-5	SWF-OF-010	30347288	6.61	8778359	6.88	24653138	6.90
280-85298-6	SWF-OF-005	33662478	6.58	8691367	6.86	26706507	6.88
280-85298-7	SWF-OF-003	31739862	6.61	8234468	6.88	25834918	6.90
280-85298-8	SWF-FB-6	30783456	6.60	8604309	6.88	24954807	6.90
280-85298-9	SWF-WB-3	32105403	6.59	8555297	6.87	26019556	6.89
280-85298-10	DBF-MW-3	30960043	6.51	7753528	6.79	22603043	6.80
CCV 280-334166/53		27075760	6.60	7877665	6.88	22561158	6.90
CCV 280-334502/3		28224631	6.47	8680715	6.74	21659664	6.76
280-85298-11	DBF-MW-4	30206137	6.45	8218414	6.73	25083365	6.74
280-85298-12	FB-7	34949895	6.43	9743804	6.71	27469496	6.73
280-85298-13	DBF-MW-5	32673903	6.44	7314444	6.71	24799135	6.73
280-85298-14	DBF-MW-1	33242992	6.42	8780712	6.70	25670632	6.71
CCV 280-334502/14		28684107	6.43	8477872	6.71	22591557	6.73
CCV 280-335652/3		26554034	6.51	7823007	6.78	20576536	6.80
MB 280-334942/1-A		26208124	6.47	8526452	6.74	21275233	6.76
LCS 280-334942/2-A		24469625	6.46	7919278	6.73	20064487	6.75
280-85298-1 RE	SWF-OF-013 RE	26352945	6.45	7641280	6.72	20673242	6.74

OA = 13C4 PFOA (IS)
PFOS = 13C4 PFOS (IS)
NA = 13C5 PFNA (IS)

Area Limit = 50%-150% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII DV-LC-0012

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Instrument ID: LC_LCMS5 Calibration Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calibration End Date: 06/06/2016 16:28

Calibration ID: 26146

		OA		PFOS		NA	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		29955425	6.60	8404326	6.87	21941427	6.89
UPPER LIMIT		44933138	7.10	12606489	7.37	32912141	7.39
LOWER LIMIT		14977713	6.10	4202163	6.37	10970714	6.39
LAB SAMPLE ID	CLIENT SAMPLE ID						
280-85298-1 MS RE	SWF-OF-013 MS RE	24311018	6.44	6793127	6.72	19720726	6.74
280-85298-1 MSD RE	SWF-OF-013 MSD RE	24445513	6.48	7334513	6.75	20122077	6.77
280-85298-2 RE	SWF-OF RE	25672216	6.47	7650775	6.74	20552981	6.76
280-85298-3 RE	SWF-OF-011 RE	23952874	6.44	7238143	6.71	19442548	6.73
280-85298-4 RE	SWF-OF-008 RE	26235060	6.44	7203268	6.71	20007643	6.73
CCV 280-335652/14		26222655	6.46	8293633	6.74	19594169	6.75
280-85298-5 RE	SWF-OF-010 RE	25148882	6.45	7510960	6.72	21034509	6.74
280-85298-6 RE	SWF-OF-005 RE	24642181	6.44	6804093	6.71	20504663	6.73
280-85298-7 RE	SWF-OF-003 RE	25479984	6.44	7251762	6.71	20292392	6.73
280-85298-8 RE	SWF-FB-6 RE	25043249	6.44	8163465	6.71	20607330	6.73
280-85298-9 RE	SWF-WB-3 RE	26007413	6.44	8040122	6.71	20923635	6.73
280-85298-10 RE	DBF-MW-3 RE	22981679	6.45	7629867	6.72	19602595	6.74
280-85298-11 RE	DBF-MW-4 RE	22921036	6.44	6883708	6.72	19329569	6.73
280-85298-12 RE	FB-7 RE	23559339	6.44	7734029	6.71	19303632	6.73
CCV 280-335652/23		25247810	6.45	8059000	6.72	19938674	6.74
280-85298-13 RE	DBF-MW-5 RE	24725762	6.44	6998452	6.71	19455355	6.73
280-85298-14 RE	DBF-MW-1 RE	24678780	6.46	7136435	6.73	20422743	6.75
CCV 280-335652/30		25571146	6.43	8460205	6.71	20454667	6.73

OA = 13C4 PFOA (IS)
PFOS = 13C4 PFOS (IS)
NA = 13C5 PFNA (IS)

Area Limit = 50%-150% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII DV-LC-0012

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Instrument ID: LC_LCMS5 Calibration Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calibration End Date: 06/06/2016 16:28

Calibration ID: 26146

		DA		UNA		DOA	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		24627236	7.13	14935970	7.34	31753371	7.51
UPPER LIMIT		36940854	7.63	22403955	7.84	47630057	8.01
LOWER LIMIT		12313618	6.63	7467985	6.84	15876686	7.01
LAB SAMPLE ID	CLIENT SAMPLE ID						
ICB 280-328740/12		26344510	7.33	15946426	7.54	35155268	7.71
ICV 280-328740/13		27322567	7.16	17486001	7.37	34783992	7.55
DLCK 280-328740/14		28251355	7.13	17474457	7.34	35228011	7.51
CCV 280-334166/31		21812851	7.23	13761043	7.43	27647676	7.60
MB 280-333869/1-A		26478181	7.12	15945571	7.33	26948836	7.51
LCS 280-333869/2-A		26230563	7.21	16510252	7.41	28639305	7.58
280-85298-1	SWF-OF-013	25049304	7.17	13361374	7.37	23147738	7.55
280-85298-1 MS	SWF-OF-013 MS	24389027	7.16	14556632	7.37	25892478	7.55
CCV 280-334166/42		22062987	7.20	13935186	7.40	28939047	7.57
280-85298-1 MSD	SWF-OF-013 MSD	22995741	7.18	12423362	7.39	19362904	7.56
280-85298-2	SWF-OF	21504872	7.17	10981435	7.38	17961687	7.56
280-85298-3	SWF-OF-011	24991201	7.07	13316168	7.28	24053033	7.46
280-85298-4	SWF-OF-008	27725556	7.09	16304157	7.30	29946242	7.47
280-85298-5	SWF-OF-010	25126011	7.14	15695520	7.35	28926590	7.53
280-85298-6	SWF-OF-005	25557498	7.12	15037480	7.33	25927606	7.51
280-85298-7	SWF-OF-003	23286340	7.14	14297512	7.35	24997428	7.53
280-85298-8	SWF-FB-6	26483457	7.14	17085087	7.35	29236039	7.53
280-85298-9	SWF-WB-3	24674377	7.12	12805294	7.34	24134502	7.52
280-85298-10	DBF-MW-3	21301883	7.05	9346353	7.26	14900142*	7.44
CCV 280-334166/53		22493518	7.14	13589960	7.35	28515542	7.53
CCV 280-334502/3		23525206	7.01	14337828	7.22	30414808	7.39
280-85298-11	DBF-MW-4	22021381	7.00	12772872	7.21	21181383	7.39
280-85298-12	FB-7	28523126	6.98	17064608	7.19	31436445	7.38
280-85298-13	DBF-MW-5	21762251	6.98	11159393	7.19	16880448	7.37
280-85298-14	DBF-MW-1	22714301	6.96	12181095	7.17	21327726	7.36
CCV 280-334502/14		24044067	6.99	14501538	7.20	29650845	7.38
CCV 280-335652/3		21591742	7.05	13297549	7.26	27676648	7.44
MB 280-334942/1-A		21186384	7.01	12442637	7.22	19756200	7.40
LCS 280-334942/2-A		20259030	7.00	12148113	7.21	17821534	7.38
280-85298-1 RE	SWF-OF-013 RE	19334331	6.99	9287836	7.21	12167894*	7.38

DA = 13C2 PFDA (IS)
UNA = 13C2 PFUnA (IS)
DOA = 13C2 PFDoA (IS)

Area Limit = 50%-150% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII DV-LC-0012

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Instrument ID: LC_LCMS5 Calibration Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calibration End Date: 06/06/2016 16:28

Calibration ID: 26146

		DA		UNA		DOA	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		24627236	7.13	14935970	7.34	31753371	7.51
UPPER LIMIT		36940854	7.63	22403955	7.84	47630057	8.01
LOWER LIMIT		12313618	6.63	7467985	6.84	15876686	7.01
LAB SAMPLE ID	CLIENT SAMPLE ID						
280-85298-1 MS RE	SWF-OF-013 MS RE	18250923	6.99	9099261	7.20	15139600*	7.38
280-85298-1 MSD RE	SWF-OF-013 MSD RE	17945926	7.02	8975566	7.23	13180759*	7.40
280-85298-2 RE	SWF-OF RE	18896240	7.01	8770778	7.22	13142446*	7.39
280-85298-3 RE	SWF-OF-011 RE	17673101	6.98	7492124	7.20	10435090*	7.38
280-85298-4 RE	SWF-OF-008 RE	19214082	6.98	9380796	7.20	15381531*	7.37
CCV 280-335652/14		21340245	7.01	13038200	7.22	28135942	7.39
280-85298-5 RE	SWF-OF-010 RE	19802104	6.99	11811544	7.21	20353967	7.38
280-85298-6 RE	SWF-OF-005 RE	17303265	6.99	7990701	7.20	13518345*	7.38
280-85298-7 RE	SWF-OF-003 RE	17361958	6.98	8472919	7.19	12229512*	7.37
280-85298-8 RE	SWF-FB-6 RE	20795146	6.99	13701821	7.21	24410474	7.38
280-85298-9 RE	SWF-WB-3 RE	20056567	6.98	10064945	7.19	13119881*	7.37
280-85298-10 RE	DBF-MW-3 RE	17433502	6.99	7290340*	7.20	9993407*	7.38
280-85298-11 RE	DBF-MW-4 RE	14933516	6.99	8058061	7.20	11785818*	7.38
280-85298-12 RE	FB-7 RE	19667318	6.98	12833362	7.20	21050227	7.38
CCV 280-335652/23		20054878	6.99	13030498	7.20	27104703	7.38
280-85298-13 RE	DBF-MW-5 RE	16003466	6.98	5992127*	7.19	8899541*	7.37
280-85298-14 RE	DBF-MW-1 RE	19284331	7.00	8780698	7.21	12119599*	7.39
CCV 280-335652/30		21383196	6.98	13322723	7.20	29756332	7.38

DA = 13C2 PFDA (IS)
UNA = 13C2 PFUnA (IS)
DOA = 13C2 PFDoA (IS)

Area Limit = 50%-150% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII DV-LC-0012

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Instrument ID: LC_LCMS5 Calibration Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calibration End Date: 06/06/2016 16:28

Calibration ID: 26146

		FOSA					
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		24015655	7.61				
UPPER LIMIT		36023483	8.11				
LOWER LIMIT		12007828	7.11				
LAB SAMPLE ID	CLIENT SAMPLE ID						
ICB 280-328740/12		26245096	7.82				
ICV 280-328740/13		26768431	7.64				
DLCK 280-328740/14		27255655	7.61				
CCV 280-334166/31		20560844	7.76				
MB 280-333869/1-A		1056552*	7.64				
LCS 280-333869/2-A		980305*	7.74				
280-85298-1	SWF-OF-013	2099632*	7.69				
280-85298-1 MS	SWF-OF-013 MS	2100872*	7.70				
CCV 280-334166/42		23432184	7.73				
280-85298-1 MSD	SWF-OF-013 MSD	2083190*	7.71				
280-85298-2	SWF-OF	1221370*	7.70				
280-85298-3	SWF-OF-011	1463499*	7.60				
280-85298-4	SWF-OF-008	1975177*	7.61				
280-85298-5	SWF-OF-010	1758500*	7.67				
280-85298-6	SWF-OF-005	2702934*	7.65				
280-85298-7	SWF-OF-003	1739455*	7.67				
280-85298-8	SWF-FB-6	623189*	7.67				
280-85298-9	SWF-WB-3	601385*	7.65				
280-85298-10	DBF-MW-3	741493*	7.58				
CCV 280-334166/53		23070835	7.67				
CCV 280-334502/3		24422310	7.52				
280-85298-11	DBF-MW-4	1053323*	7.52				
280-85298-12	FB-7	800759*	7.51				
280-85298-13	DBF-MW-5	1089863*	7.51				
280-85298-14	DBF-MW-1	821395*	7.49				
CCV 280-334502/14		24541165	7.53				
CCV 280-335652/3		19445601	7.56				
MB 280-334942/1-A		784603*	7.54				
LCS 280-334942/2-A		721050*	7.53				
280-85298-1 RE	SWF-OF-013 RE	2056981*	7.53				

FOSA = 13C8 FOSA (IS)

Area Limit = 50%-150% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII DV-LC-0012

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Instrument ID: LC_LCMS5 Calibration Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calibration End Date: 06/06/2016 16:28

Calibration ID: 26146

		FOSA					
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		24015655	7.61				
UPPER LIMIT		36023483	8.11				
LOWER LIMIT		12007828	7.11				
LAB SAMPLE ID	CLIENT SAMPLE ID						
280-85298-1 MS RE	SWF-OF-013 MS RE	1960974*	7.52				
280-85298-1 MSD RE	SWF-OF-013 MSD RE	1291466*	7.56				
280-85298-2 RE	SWF-OF RE	1818625*	7.55				
280-85298-3 RE	SWF-OF-011 RE	1422656*	7.53				
280-85298-4 RE	SWF-OF-008 RE	2018300*	7.52				
CCV 280-335652/14		18472971	7.56				
280-85298-5 RE	SWF-OF-010 RE	2035100*	7.54				
280-85298-6 RE	SWF-OF-005 RE	1666469*	7.53				
280-85298-7 RE	SWF-OF-003 RE	2095614*	7.53				
280-85298-8 RE	SWF-FB-6 RE	702120*	7.56				
280-85298-9 RE	SWF-WB-3 RE	832168*	7.53				
280-85298-10 RE	DBF-MW-3 RE	1375085*	7.54				
280-85298-11 RE	DBF-MW-4 RE	1576838*	7.55				
280-85298-12 RE	FB-7 RE	637089*	7.55				
CCV 280-335652/23		18230178	7.55				
280-85298-13 RE	DBF-MW-5 RE	869665*	7.53				
280-85298-14 RE	DBF-MW-1 RE	1135257*	7.55				
CCV 280-335652/30		18372053	7.56				

FOSA = 13C8 FOSA (IS)

Area Limit = 50%-150% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII DV-LC-0012

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: SWF-OF-013 | Lab Sample ID: 280-85298-1

Matrix: Water | Lab File ID: PC516G18045.d

Analysis Method: DV-LC-0012 | Date Collected: 07/05/2016 11:05

Extraction Method: 3535 | Date Extracted: 07/16/2016 07:25

Sample wt/vol: 253.9(mL) | Date Analyzed: 07/18/2016 20:54

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 334166 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.020	F1 *	0.020	0.0081
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.024	J	0.030	0.013
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.17		0.030	0.0069
375-95-1	Perfluorononanoic acid (PFNA)	0.017	U	0.039	0.017
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.13	F1	0.030	0.013
335-67-1	Perfluorooctanoic acid (PFOA)	0.040		0.020	0.0096

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	101		60-155
STL01054	13C8 PFOS	97		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18045.d
Lims ID: 280-85298-B-1-A Lab Sample ID: 280-85298-1
Client ID: SWF-OF-013
Sample Type: Client
Inject. Date: 18-Jul-2016 20:54:07 ALS Bottle#: 0 Worklist Smp#: 40
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85298-B-1-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 19-Jul-2016 15:53:00 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK035

First Level Reviewer: fiedlerh Date: 19-Jul-2016 13:32:50

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.190	4.333	-0.143		27232907	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	4.191	4.333	-0.142	1.000	3445988	1.18			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.261	5.346	-0.085	0.901	6322282	2.55			
4 Perfluorobutane Sulfonate									M
298.9 > 79.9	5.374	5.459	-0.085	0.856	1383769	1.00			M
298.9 > 98.9	5.383	5.459	-0.076	0.857	471084		2.94(1.80-3.35)		
5 Perfluorobutanesulfonic acid									M
298.9 > 79.9	5.374	5.459	-0.085	0.856	1383769	1.00			M
298.9 > 98.9	5.383	5.459	-0.076	0.857	471084		2.94(2.57-2.57)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.837	5.932	-0.095		20938669	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.838	5.932	-0.094	1.000	12076916	6.09			
313.0 > 118.6	5.828	5.932	-0.104	0.998	303237		39.83(34.05-63.23)		
8 Perfluoroheptanoic acid									M
363.0 > 318.9	6.282	6.358	-0.076	0.947	3718139	1.24			M
363.0 > 168.9	6.282	6.358	-0.076	0.947	987903		3.76(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.282	6.367	-0.085		2514153	9.46			
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.282	6.367	-0.085	1.000	9069698	8.81			
398.9 > 98.9	6.272	6.367	-0.095	0.999	2921516		3.10(1.85-1.85)		
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.282	6.367	-0.085	1.000	9069698	8.81			R
398.9 > 98.9	6.272	6.367	-0.095	0.999	2921516		3.10(1.30-2.41)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9		6.688				ND			
449.0 > 98.9		6.688							
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9		6.688				ND			
449.0 > 98.9		6.688							
$ 14 13C8 PFOA									
421.0 > 375.9	6.631	6.697	-0.066	1.000	27541632	10.1			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.631	6.698	-0.067		33732544	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.632	6.698	-0.066	1.000	7309749	2.02			
413.0 > 169.0	6.622	6.698	-0.076	0.999	2254073		3.24(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.903	6.970	-0.067	1.000	4832053	9.27			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.904	6.970	-0.066		8147290	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.895	6.970	-0.075	0.999	6416793	6.40			R
498.9 > 98.9	6.895	6.970	-0.075	0.999	1965492		3.26(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.924	6.990	-0.066		25169577	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.914	6.990	-0.076	0.999	677912	0.1975			
463.0 > 218.9	6.895	6.990	-0.095	0.996	114015		5.95(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.168	7.225	-0.057		25049304	10.0			
23 Perfluorodecanoic acid									M
513.0 > 468.9	7.159	7.225	-0.066	0.999	597499	0.2028			M
513.0 > 219.0	7.197	7.225	-0.028	1.004	48689		12.27(10.49-19.48)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9		7.404				ND			
598.9 > 99.0		7.404							
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9		7.404				ND			
598.9 > 99.0		7.404							
27 Perfluoroundecanoic acid									
563.0 > 518.9		7.433				ND			
563.0 > 268.9		7.433							
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.366	7.432	-0.066		13361374	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.545	7.602	-0.057		23147738	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9		7.602				ND			
613.0 > 168.9		7.602							
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.690	7.756	-0.066		2099632	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0		7.757				ND			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.365	7.753	-0.388	0.976	1979387	0.8454			
33 Perfluorotetradecanoic acid									
712.9 > 668.8		7.885				ND			
712.9 > 169.0		7.885							

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

R - Failed Signal Ratio Test

s - Failed ISTD Recovery Test

Review Flags

M - Manually Integrated

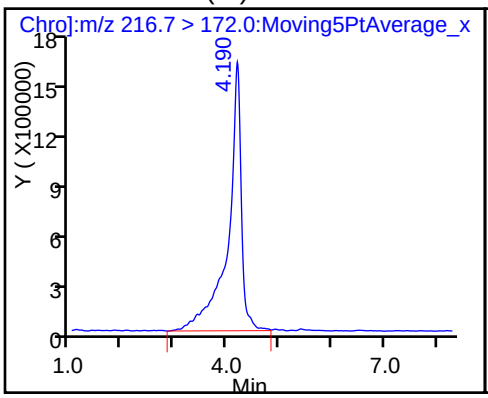
Report Date: 19-Jul-2016 15:53:30 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

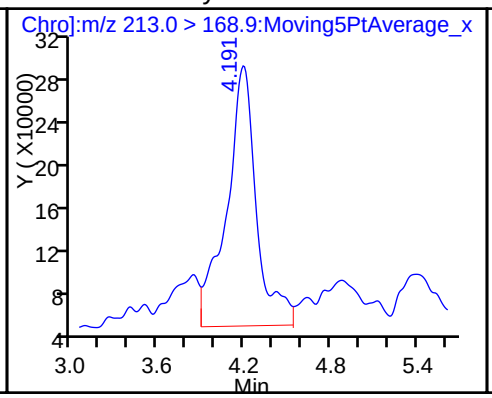
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18045.d

Injection Date:	18-Jul-2016 20:54:07	Instrument ID:	LC_LCMS5		
Lims ID:	280-85298-B-1-A	Lab Sample ID:	280-85298-1		
Client ID:	SWF-OF-013				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	40
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

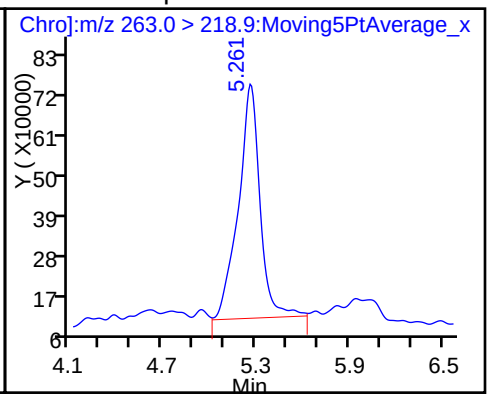
* 1 13C4 PFBA (IS)



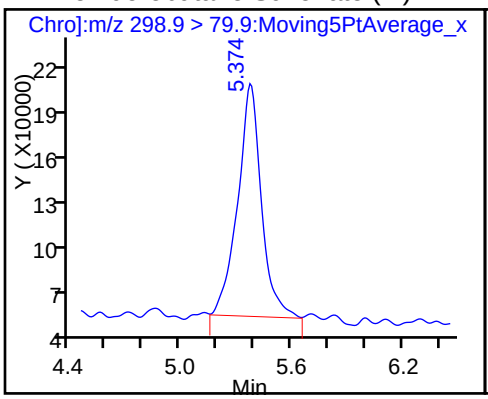
2 Perfluorobutyric acid



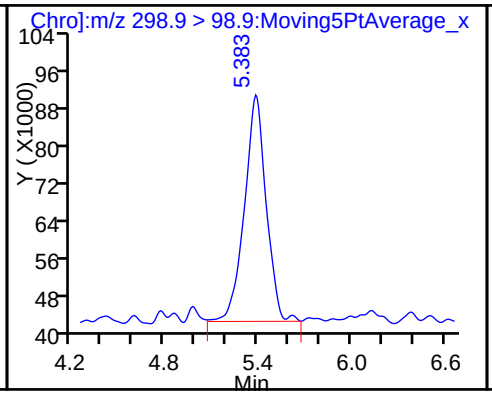
3 Perfluoropentanoic acid



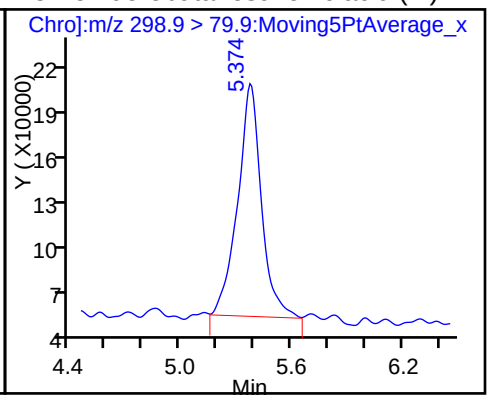
4 Perfluorobutane Sulfonate (M)



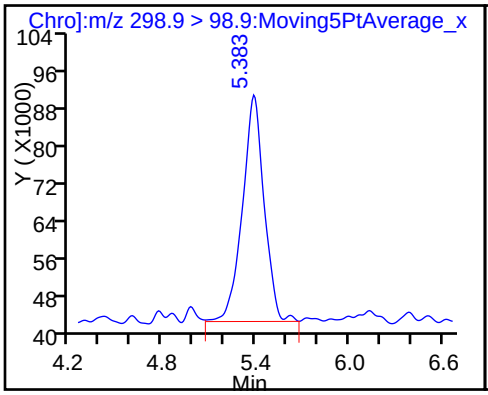
4 Perfluorobutane Sulfonate



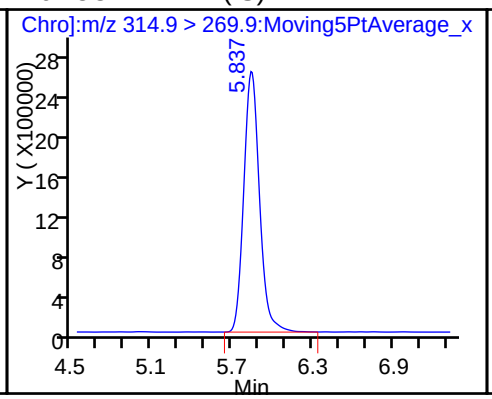
5 Perfluorobutanesulfonic acid (M)



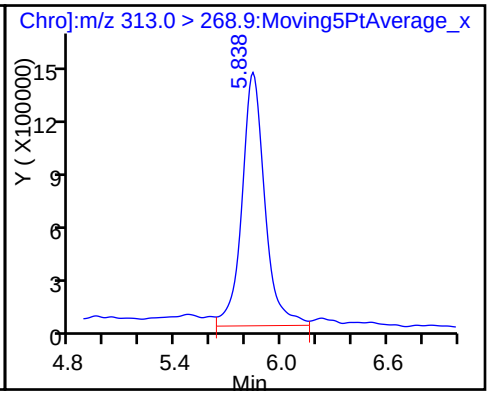
5 Perfluorobutanesulfonic acid



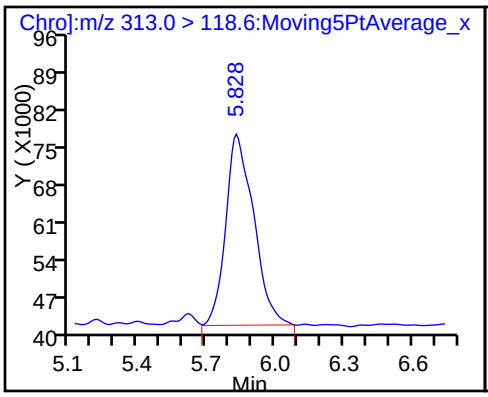
* 6 13C2 PFHxA (IS)



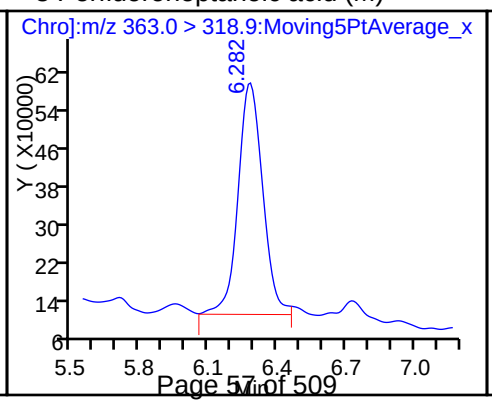
7 Perfluorohexanoic acid



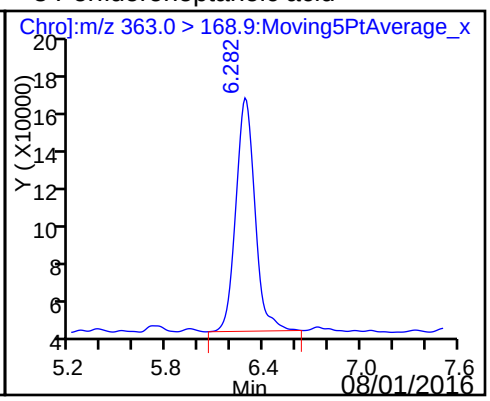
7 Perfluorohexanoic acid



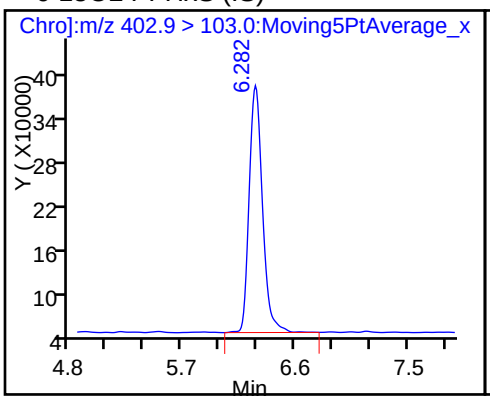
8 Perfluoroheptanoic acid (M)



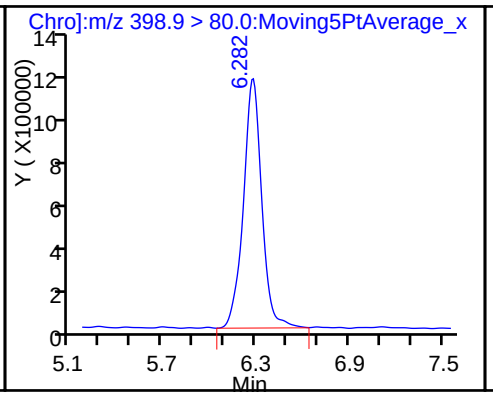
8 Perfluoroheptanoic acid



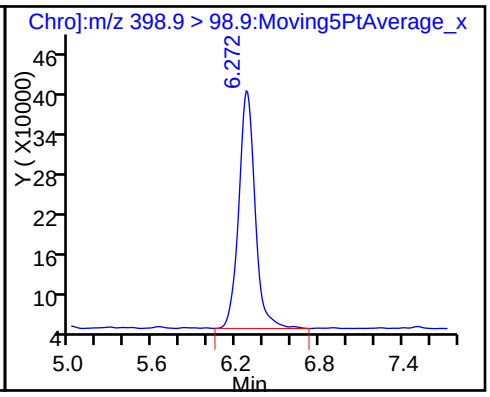
* 9 18O2 PFHxS (IS)



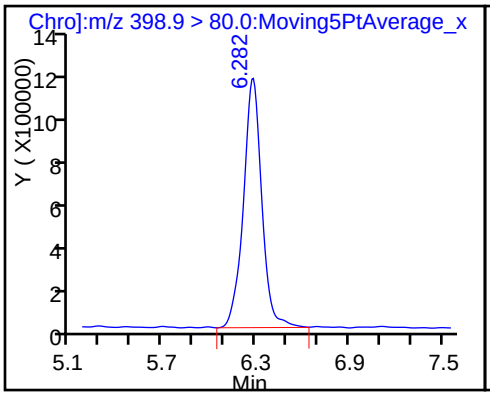
11 Perfluorohexanesulfonic acid



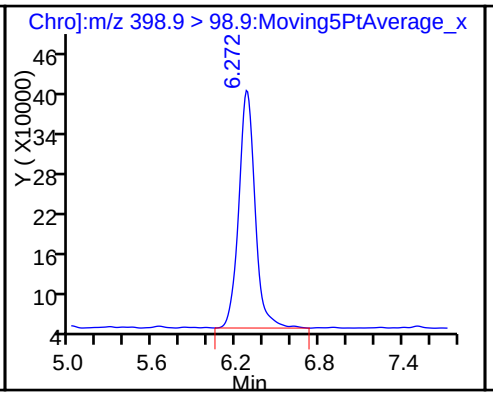
11 Perfluorohexanesulfonic acid



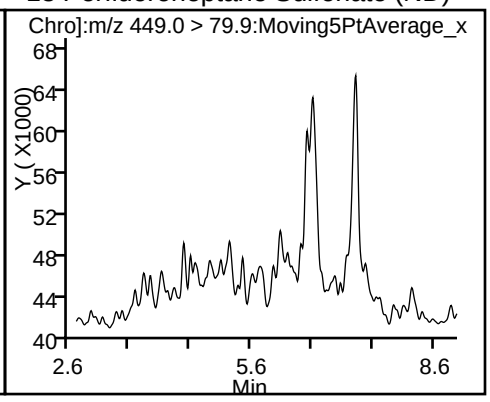
10 Perfluorohexane Sulfonate



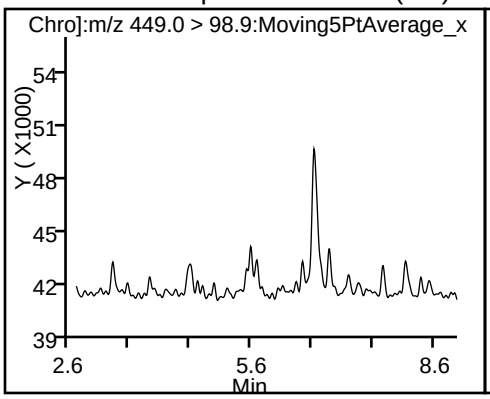
10 Perfluorohexane Sulfonate



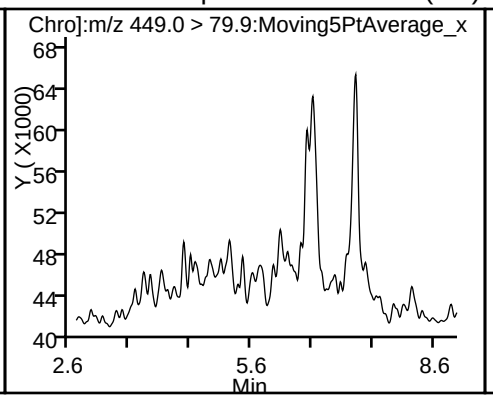
13 Perfluoroheptane Sulfonate (ND)



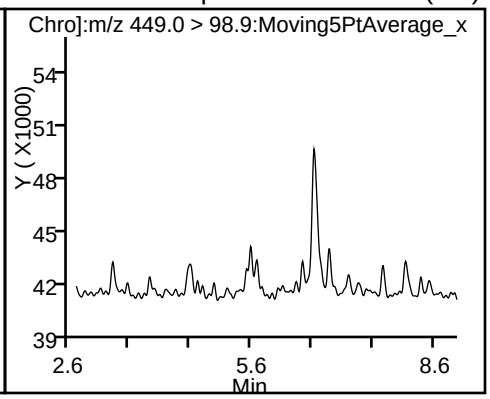
13 Perfluoroheptane Sulfonate (ND)



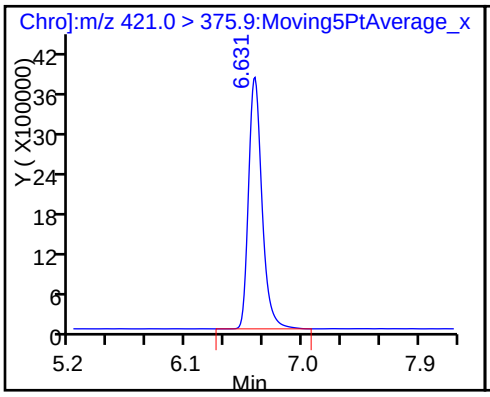
12 Perfluoroheptanesulfonic Acid (ND)



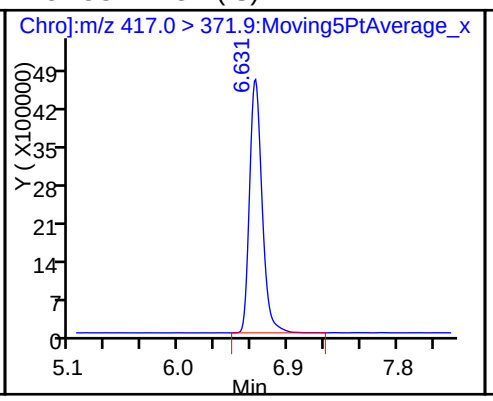
12 Perfluoroheptanesulfonic Acid (ND)



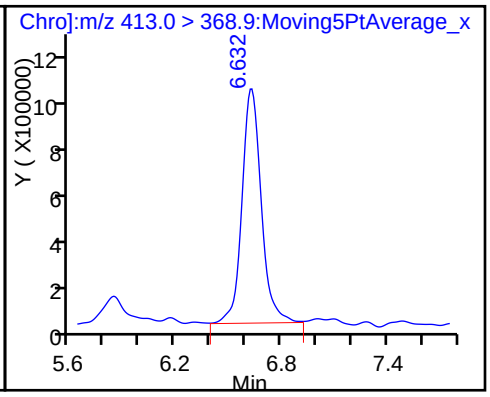
$ 14 13C8 PFOA



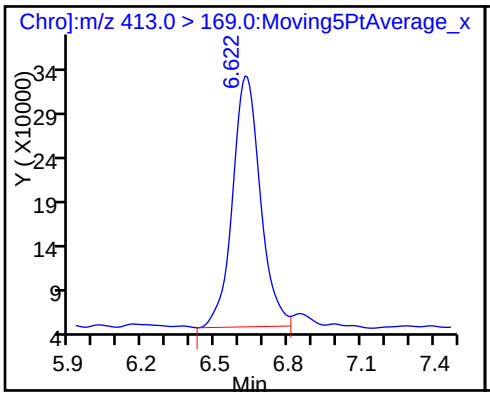
* 15 13C4 PFOA (IS)



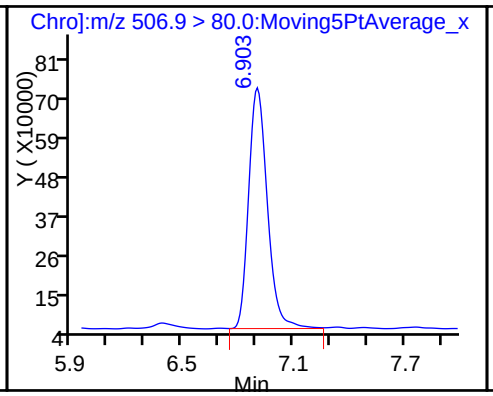
16 Perfluorooctanoic acid



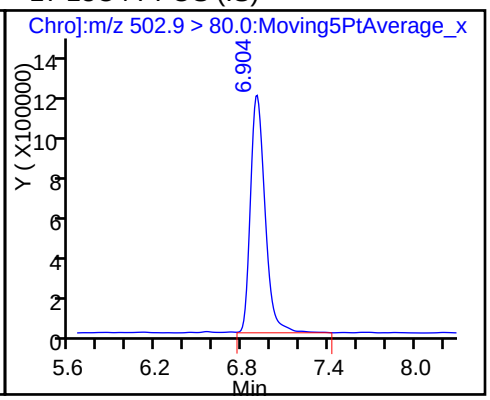
16 Perfluorooctanoic acid



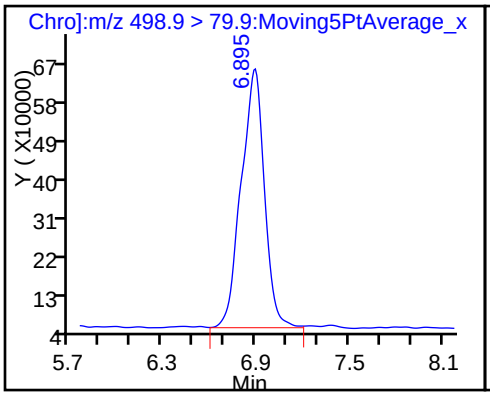
$ 18 13C8 PFOS



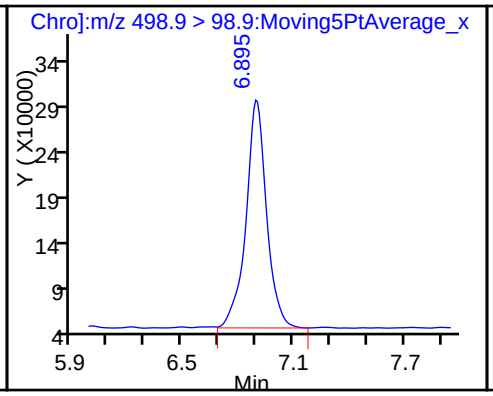
* 17 13C4 PFOS (IS)



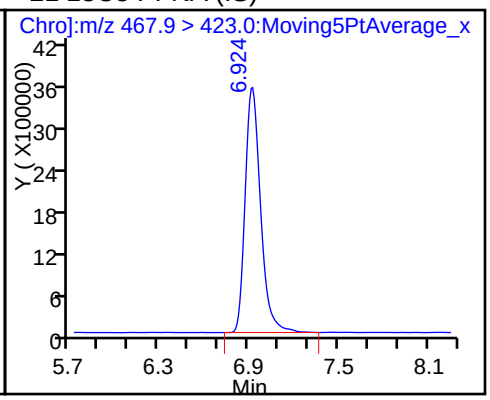
19 Perfluorooctane sulfonic acid



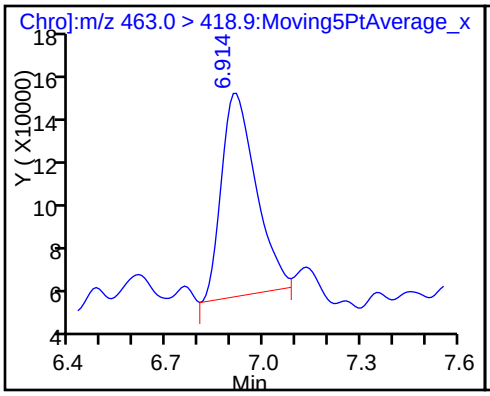
19 Perfluorooctane sulfonic acid



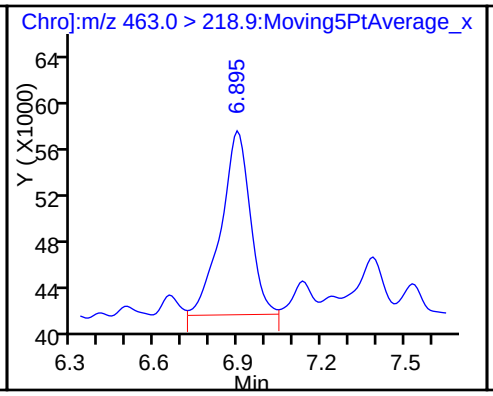
* 21 13C5 PFNA (IS)



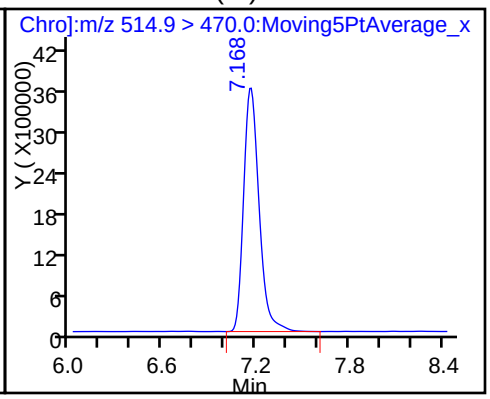
20 Perfluorononanoic acid



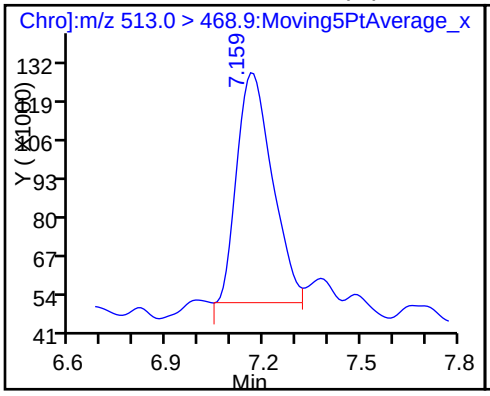
20 Perfluorononanoic acid



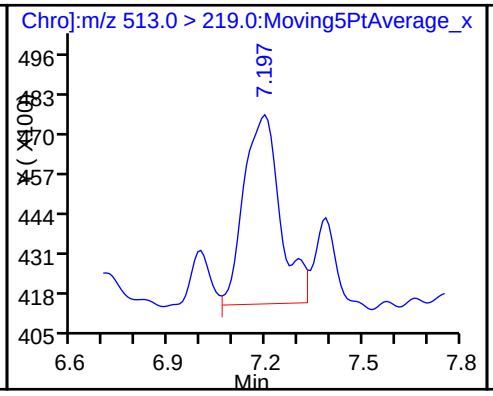
* 22 13C2 PFDA (IS)



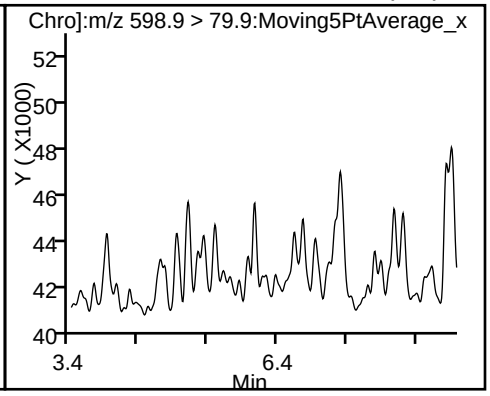
23 Perfluorodecanoic acid (M)



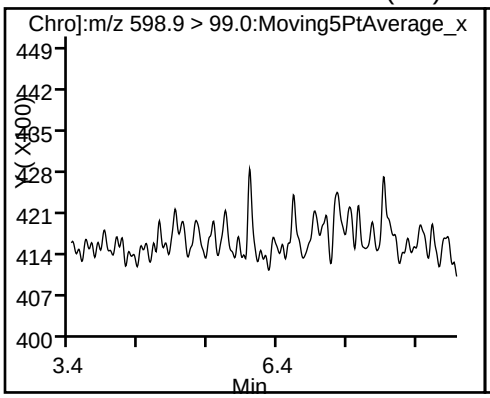
23 Perfluorodecanoic acid



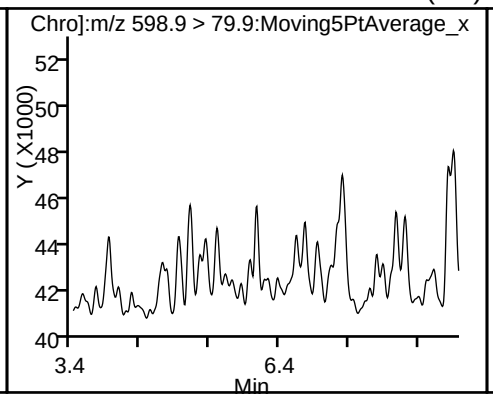
25 Perfluorodecane Sulfonate (ND)



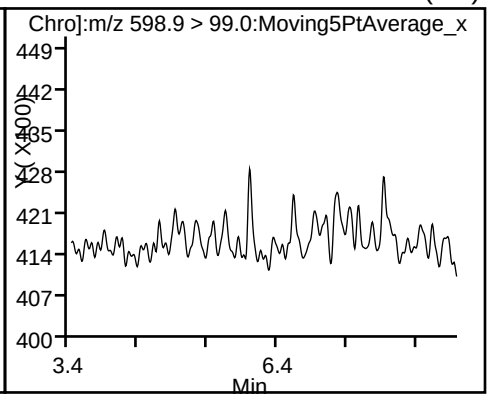
25 Perfluorodecane Sulfonate (ND)



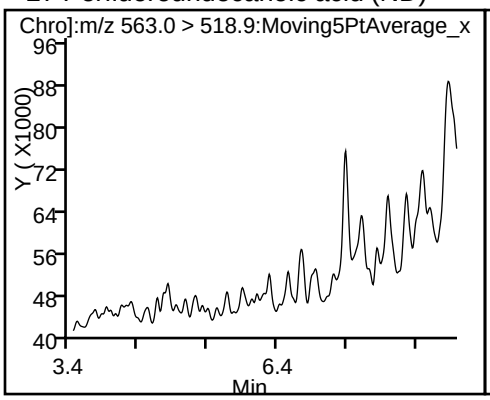
24 Perfluorodecane Sulfonic acid (ND)



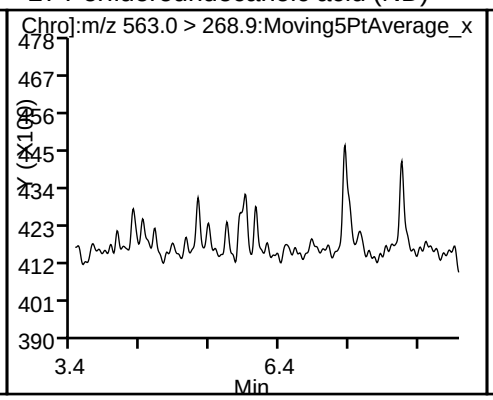
24 Perfluorodecane Sulfonic acid (ND)



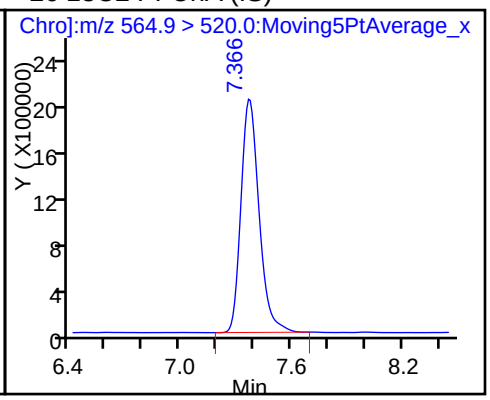
27 Perfluoroundecanoic acid (ND)



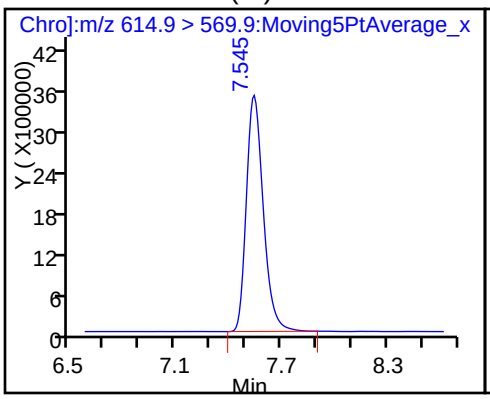
27 Perfluoroundecanoic acid (ND)



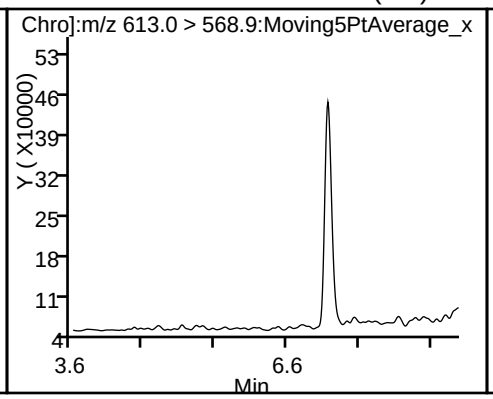
* 26 13C2 PFUnA (IS)



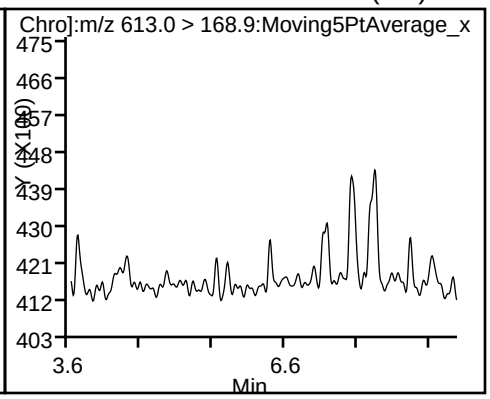
* 28 13C2 PFDoA (IS)



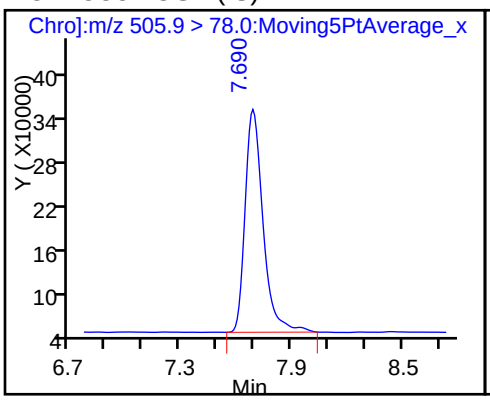
29 Perfluorododecanoic acid (ND)



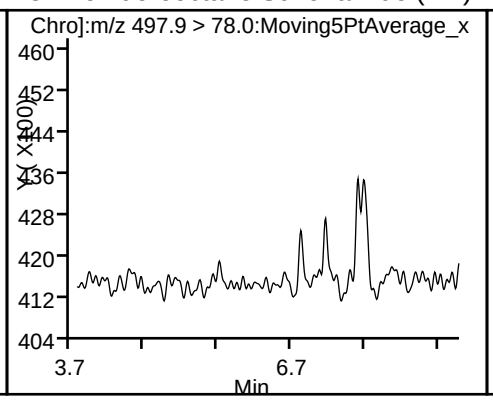
29 Perfluorododecanoic acid (ND)



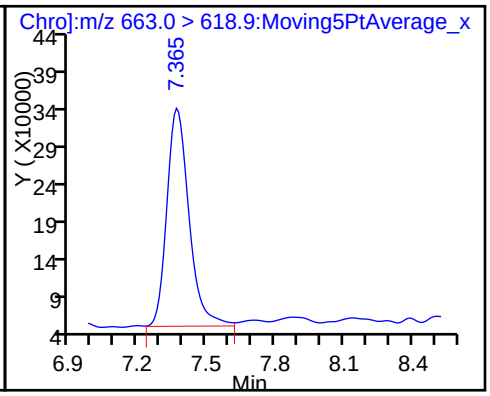
* 31 13C8 FOSA (IS)



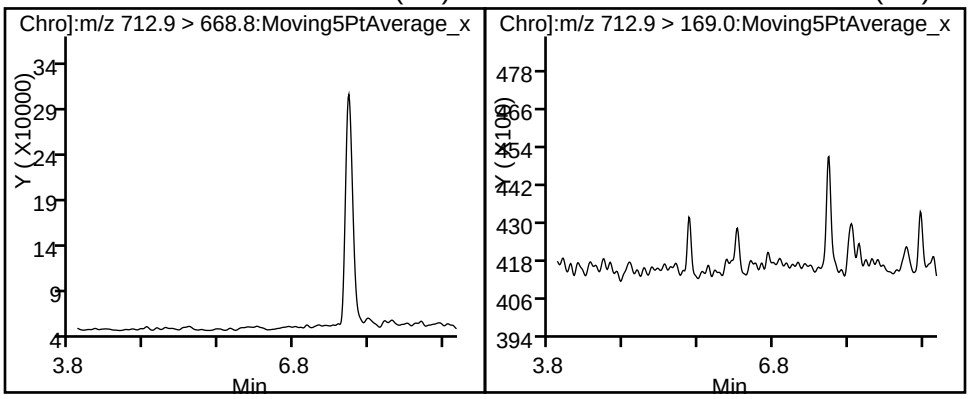
32 Perfluorooctane Sulfonamide (ND)



30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid (ND) 33 Perfluorotetradecanoic acid (ND)



Manual Integration/User Assign Peak Report

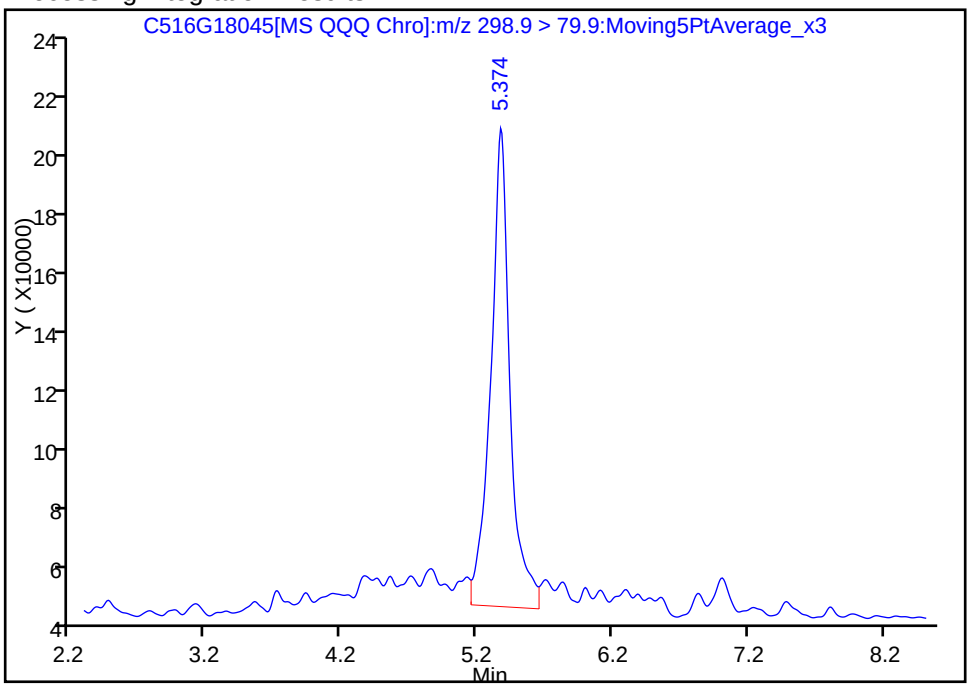
TestAmerica Denver

Data File:	\\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18045.d				
Injection Date:	18-Jul-2016 20:54:07	Instrument ID:	LC_LCMS5		
Lims ID:	280-85298-B-1-A	Lab Sample ID:	280-85298-1		
Client ID:	SWF-OF-013				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	40
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		
Column:		Detector	MS QQQ		

4 Perfluorobutane Sulfonate, CAS: 29420-43-3

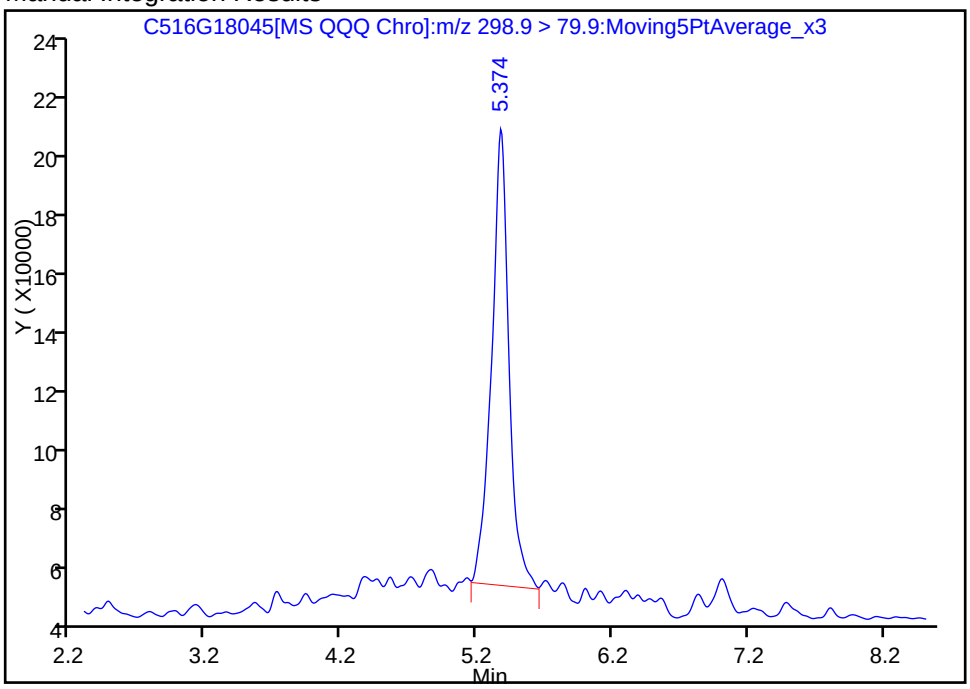
Processing Integration Results

RT: 5.37
Area: 1606732
Amount: 1.164361
Amount Units: ug/L



Manual Integration Results

RT: 5.37
Area: 1383769
Amount: 1.003917
Amount Units: ug/L



Reviewer: fiedlerh, 19-Jul-2016 13:32:50
Audit Action: Manually Integrated
Audit Reason: Split Peak

Manual Integration/User Assign Peak Report

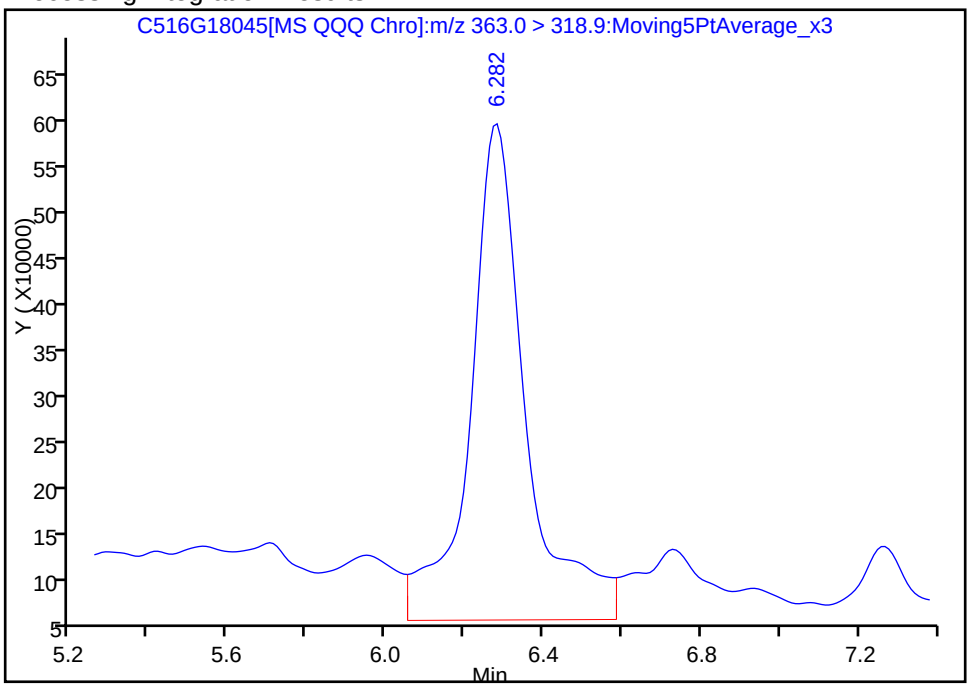
TestAmerica Denver

Data File:	\\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18045.d				
Injection Date:	18-Jul-2016 20:54:07	Instrument ID:	LC_LCMS5		
Lims ID:	280-85298-B-1-A	Lab Sample ID:	280-85298-1		
Client ID:	SWF-OF-013				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	40
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		
Column:		Detector	MS QQQ		

8 Perfluoroheptanoic acid, CAS: 375-85-9

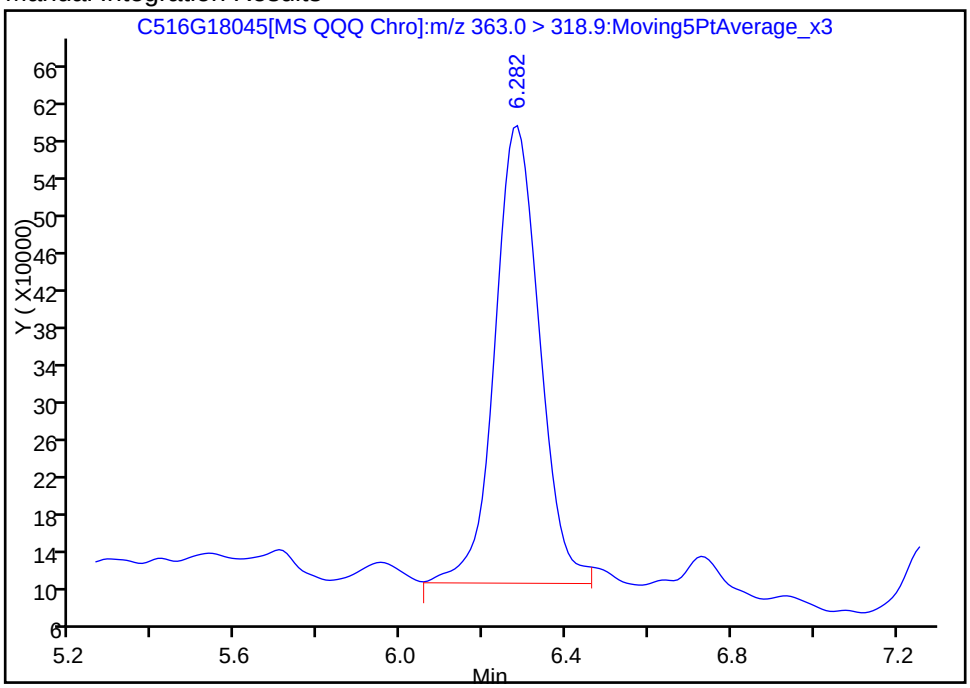
Processing Integration Results

RT: 6.28
Area: 5294040
Amount: 1.776738
Amount Units: ug/L



Manual Integration Results

RT: 6.28
Area: 3718139
Amount: 1.237895
Amount Units: ug/L



Reviewer: fiedlerh, 19-Jul-2016 13:32:50
Audit Action: Manually Integrated
Audit Reason: Split Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: SWF-OF-013 RE | Lab Sample ID: 280-85298-1 RE

Matrix: Water | Lab File ID: PC516G28052.d

Analysis Method: DV-LC-0012 | Date Collected: 07/05/2016 11:05

Extraction Method: 3535 | Date Extracted: 07/25/2016 10:50

Sample wt/vol: 255.4(mL) | Date Analyzed: 07/28/2016 18:45

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 335652 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	*Perfluorobutane Sulfonate (PFBS)*	*0.024*	*H*	*0.020*	*0.0081*
375-85-9	*Perfluoroheptanoic acid (PFHpA)*	*0.026*	*J H*	*0.029*	*0.013*
108427-53-8	*Perfluorohexane Sulfonate (PFHxS)*	*0.20*	*H*	*0.029*	*0.0068*
375-95-1	*Perfluorononanoic acid (PFNA)*	*0.017*	*U H*	*0.039*	*0.017*
1763-23-1	*Perfluorooctanesulfonic acid (PFOS)*	*0.14*	*H F1 F2*	*0.029*	*0.013*
335-67-1	*Perfluorooctanoic acid (PFOA)*	*0.048*	*H*	*0.020*	*0.0096*

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	102		60-155
STL01054	13C8 PFOS	104		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28052.d
Lims ID: 280-85298-E-1-A Lab Sample ID: 280-85298-1
Client ID: SWF-OF-013
Sample Type: Client
Inject. Date: 28-Jul-2016 18:45:50 ALS Bottle#: 0 Worklist Smp#: 8
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85298-E-1-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 29-Jul-2016 10:36:50 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK010

First Level Reviewer: meyera Date: 29-Jul-2016 09:42:40

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	3.925	4.067	-0.142		18070036	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	3.935	4.068	-0.133	1.002	2543387	1.32			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.071	5.147	-0.076	0.896	6546386	3.22			
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.194	5.260	-0.066	0.850	1484588	1.24			
298.9 > 98.9	5.184	5.260	-0.076	0.848	476561		3.12(1.80-3.35)		
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.194	5.260	-0.066	0.850	1484588	1.24			
298.9 > 98.9	5.184	5.260	-0.076	0.848	476561		3.12(2.57-2.57)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.657	5.724	-0.067		17181197	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.658	5.724	-0.066	1.000	11128781	6.84			
313.0 > 118.6	5.667	5.724	-0.057	1.002	318250		34.97(34.05-63.23)		
8 Perfluoroheptanoic acid									RM
363.0 > 318.9	6.093	6.159	-0.066	0.944	3166944	1.35			RM
363.0 > 168.9	6.093	6.159	-0.066	0.944	974415		3.25(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.111	6.168	-0.057		2178343	9.46			
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.102	6.168	-0.066	0.998	9045654	10.2			
398.9 > 98.9	6.102	6.168	-0.066	0.998	3181540		2.84(1.85-1.85)		
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.102	6.168	-0.066	0.998	9045654	10.2			R
398.9 > 98.9	6.102	6.168	-0.066	0.998	3181540		2.84(1.30-2.41)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9		6.498				ND			
449.0 > 98.9		6.498							
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9		6.498				ND			
449.0 > 98.9		6.498							
$ 14 13C8 PFOA									
421.0 > 375.9	6.451	6.508	-0.057	1.000	21350929	10.0			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.451	6.508	-0.057		26352945	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.452	6.508	-0.056	1.000	6877278	2.45			
413.0 > 169.0	6.442	6.508	-0.066	0.999	2179414		3.16(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.723	6.780	-0.057	1.000	4715268	9.65			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.724	6.781	-0.057		7641280	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.715	6.781	-0.066	0.999	6904314	7.35			R
498.9 > 98.9	6.724	6.781	-0.057	1.000	2156336		3.20(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.744	6.801	-0.056		20673242	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.734	6.801	-0.067	0.999	702585	0.2606			
463.0 > 218.9	6.744	6.801	-0.057	1.000	82340		8.53(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	6.988	7.045	-0.057		19334331	10.0			
23 Perfluorodecanoic acid									
513.0 > 468.9	6.988	7.045	-0.057	1.000	630231	0.2899			
513.0 > 219.0	6.988	7.045	-0.057	1.000	49510		12.73(10.49-19.48)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9		7.233				ND			
598.9 > 99.0		7.233							
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9		7.233				ND			
598.9 > 99.0		7.233							
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.205	7.262	-0.057		9287836	10.0			
27 Perfluoroundecanoic acid									
563.0 > 518.9		7.262				ND			
563.0 > 268.9		7.262							
* 28 13C2 PFDoA (IS)									s
614.9 > 569.9	7.384	7.441	-0.057		12167894	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9		7.441				ND			
613.0 > 168.9		7.441							
30 Perfluorotridecanoic acid									
663.0 > 618.9		7.602				ND			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.529	7.557	-0.028		2056981	10.0			
32 Perfluorooctane Sulfonamide									
497.9 > 78.0		7.558				ND			
33 Perfluorotetradecanoic acid									
712.9 > 668.8		7.734				ND			
712.9 > 169.0		7.734							

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

R - Failed Signal Ratio Test

s - Failed ISTD Recovery Test

Review Flags

M - Manually Integrated

Report Date: 29-Jul-2016 10:37:08 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28052.d

Injection Date: 28-Jul-2016 18:45:50 Instrument ID: LC_LCMS5

Lims ID: 280-85298-E-1-A Lab Sample ID: 280-85298-1

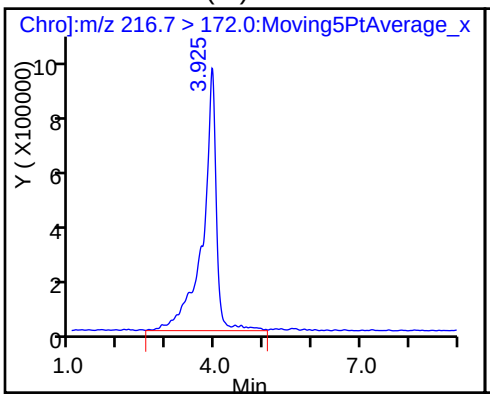
Client ID: SWF-OF-013

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 8

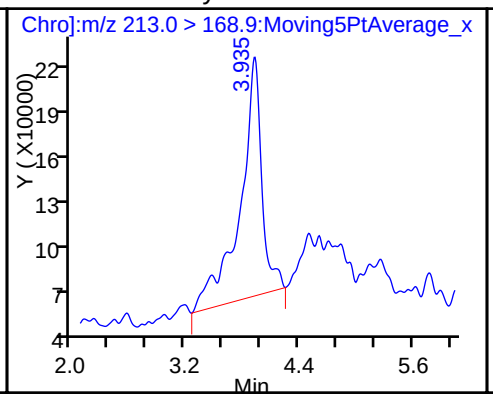
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

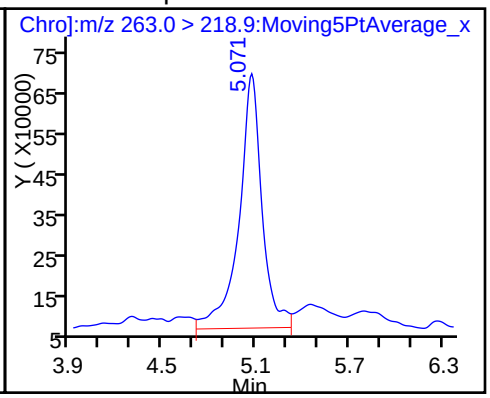
* 1 13C4 PFBA (IS)



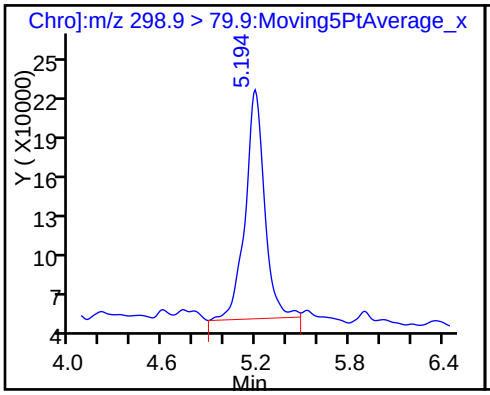
2 Perfluorobutyric acid



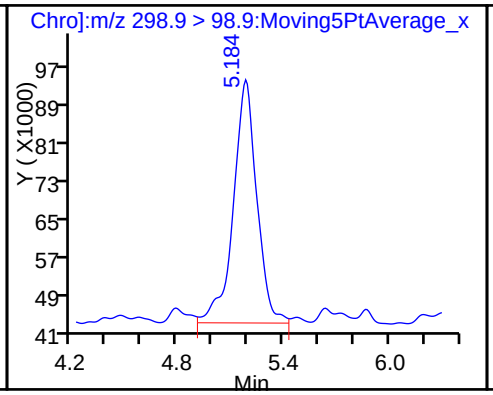
3 Perfluoropentanoic acid



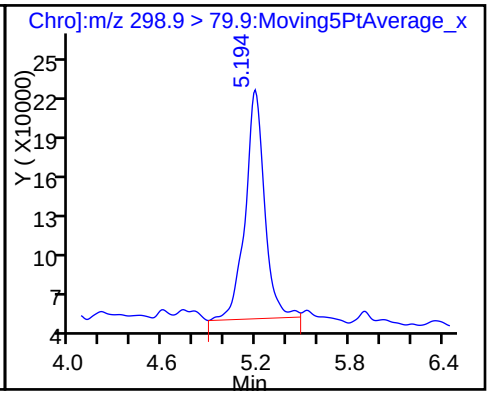
4 Perfluorobutane Sulfonate



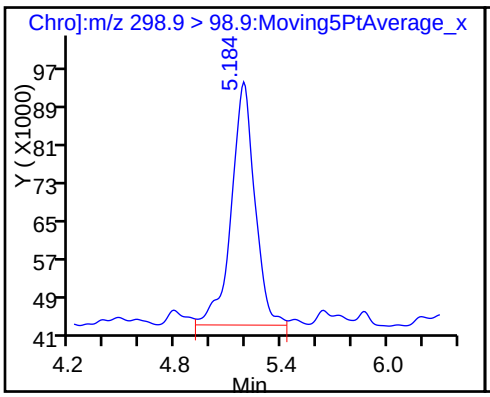
4 Perfluorobutane Sulfonate



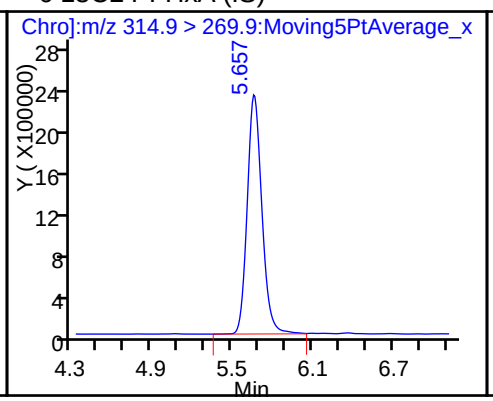
5 Perfluorobutanesulfonic acid



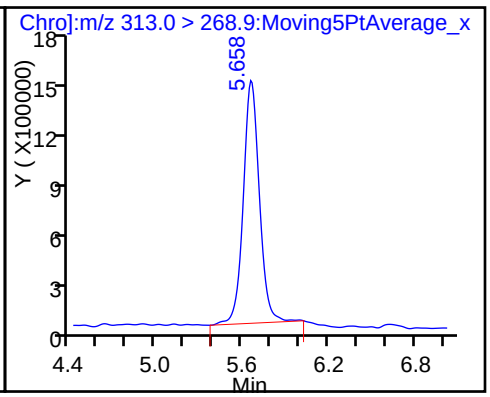
5 Perfluorobutanesulfonic acid



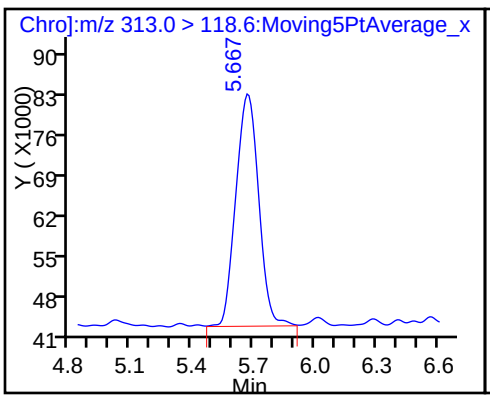
* 6 13C2 PFHxA (IS)



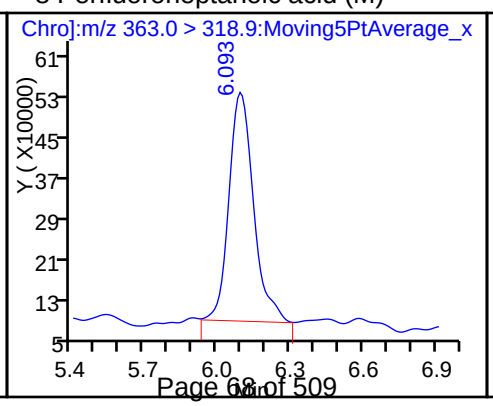
7 Perfluorohexanoic acid



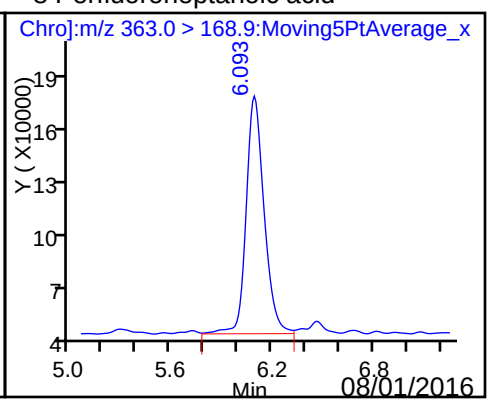
7 Perfluorohexanoic acid



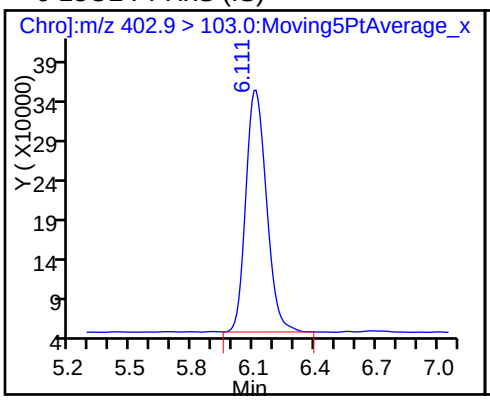
8 Perfluoroheptanoic acid (M)



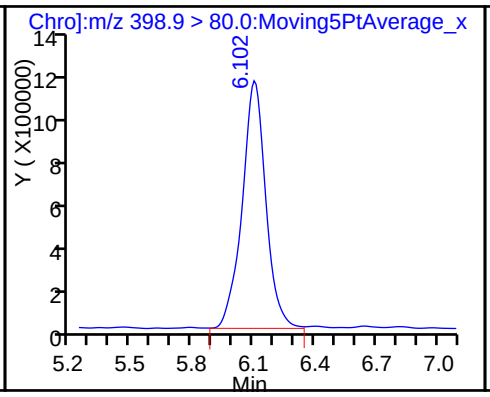
8 Perfluoroheptanoic acid



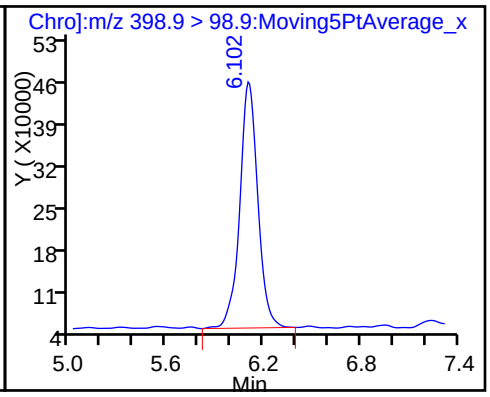
* 9 18O2 PFHxS (IS)



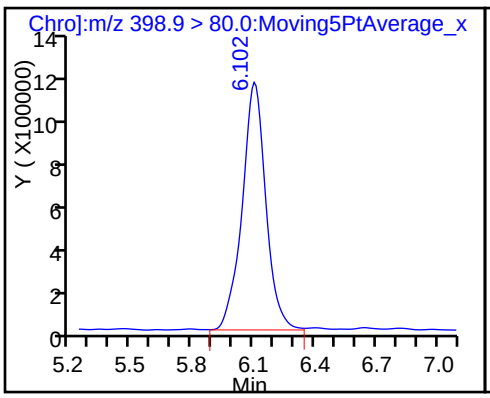
11 Perfluorohexanesulfonic acid



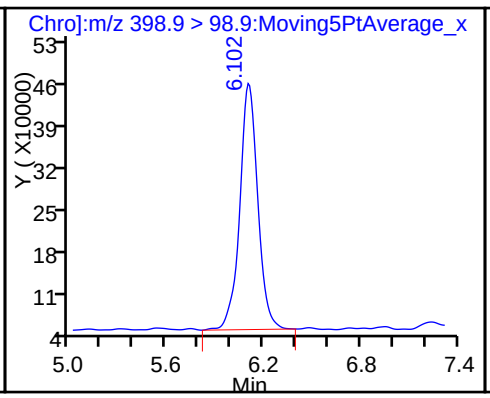
11 Perfluorohexanesulfonic acid



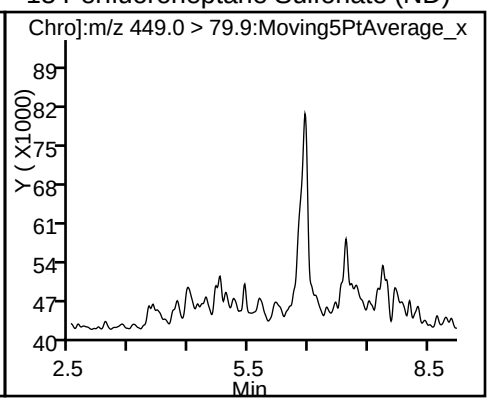
10 Perfluorohexane Sulfonate



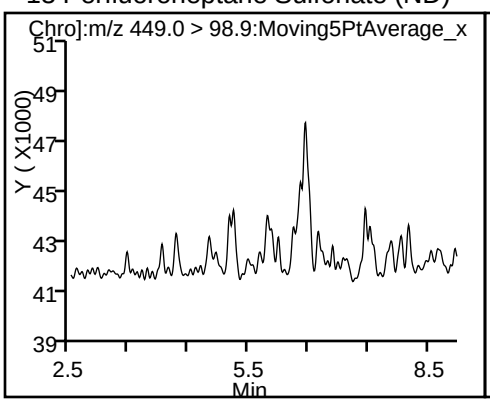
10 Perfluorohexane Sulfonate



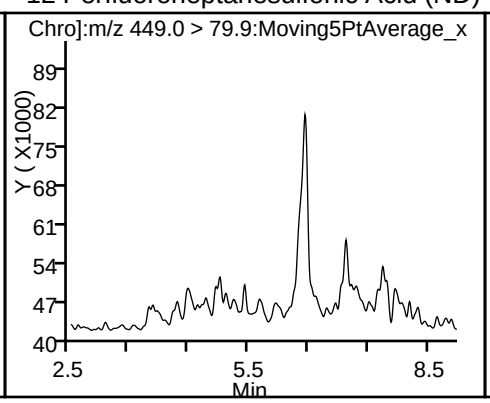
13 Perfluoroheptane Sulfonate (ND)



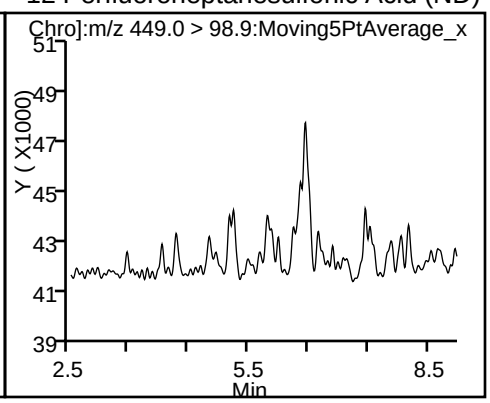
13 Perfluoroheptane Sulfonate (ND)



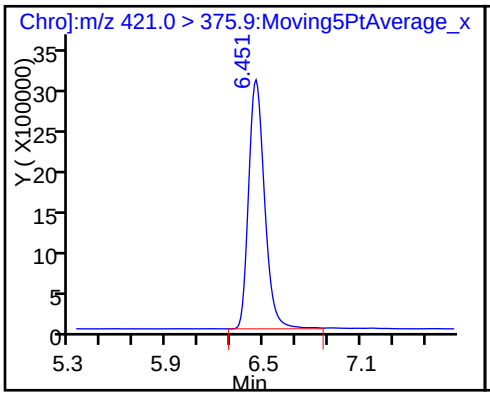
12 Perfluoroheptanesulfonic Acid (ND)



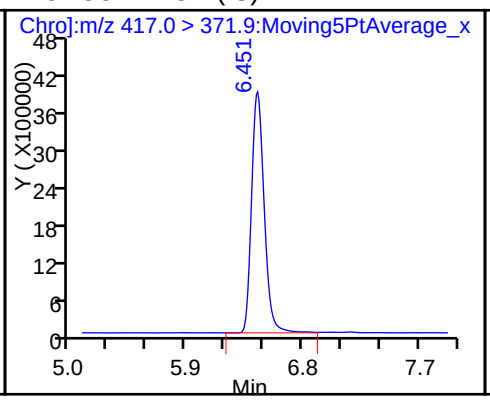
12 Perfluoroheptanesulfonic Acid (ND)



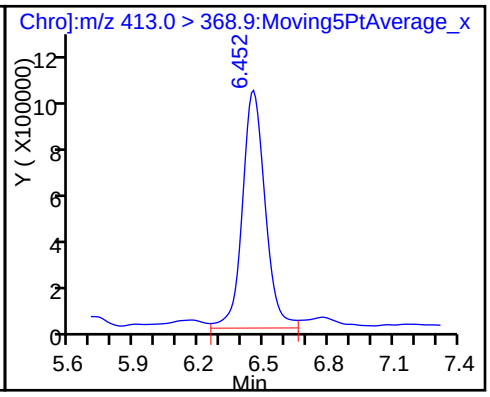
$ 14 13C8 PFOA



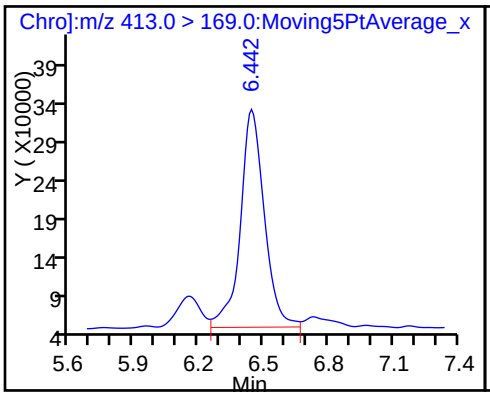
* 15 13C4 PFOA (IS)



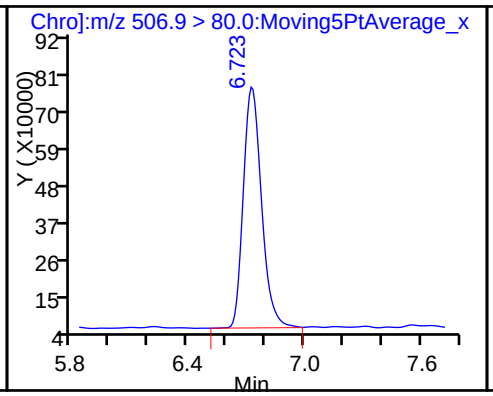
16 Perfluorooctanoic acid



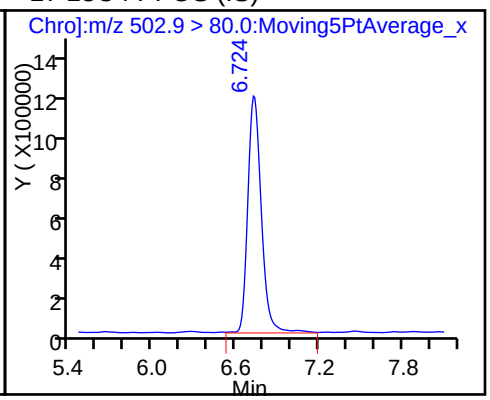
16 Perfluorooctanoic acid



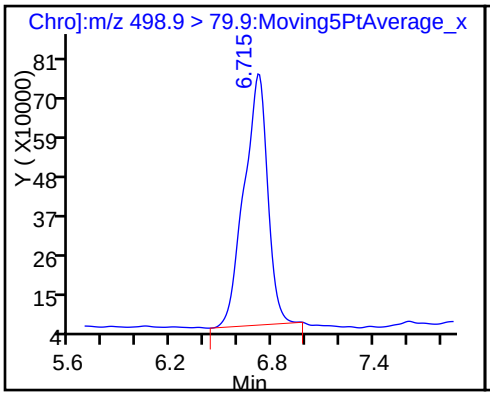
$ 18 13C8 PFOS



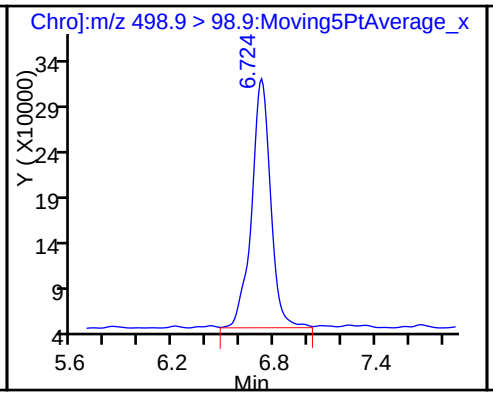
* 17 13C4 PFOS (IS)



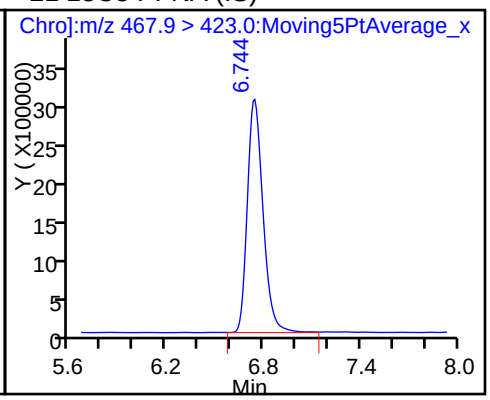
19 Perfluorooctane sulfonic acid



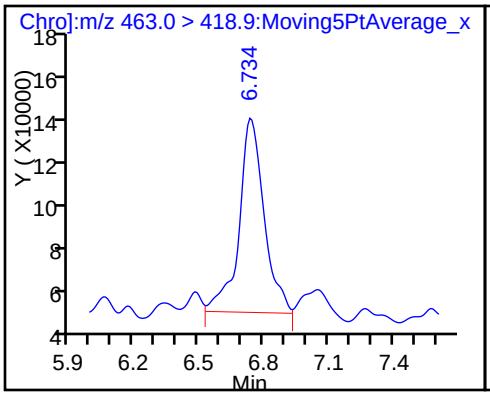
19 Perfluorooctane sulfonic acid



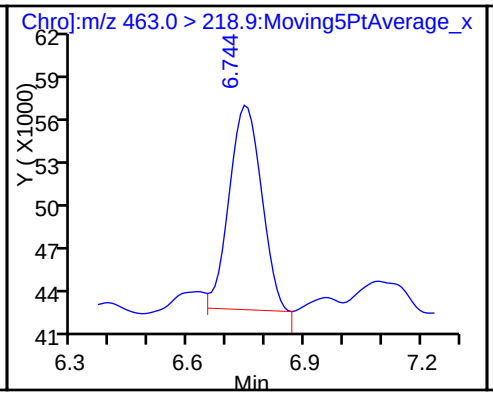
* 21 13C5 PFNA (IS)



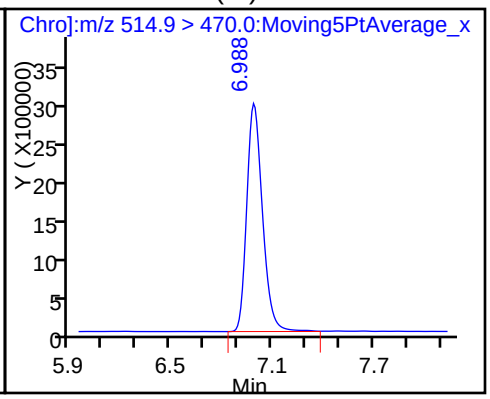
20 Perfluorononanoic acid



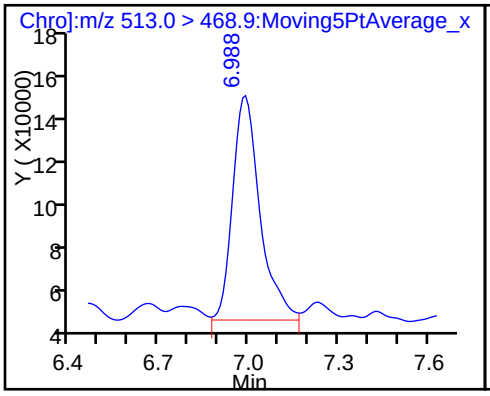
20 Perfluorononanoic acid



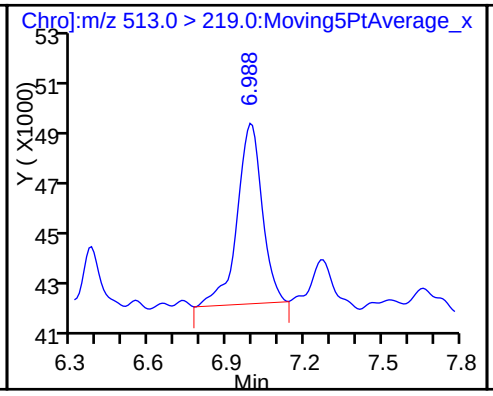
* 22 13C2 PFDA (IS)



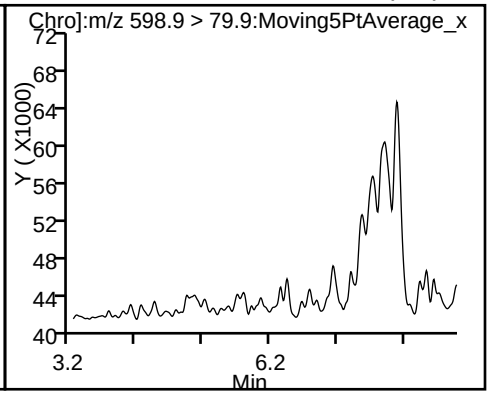
23 Perfluorodecanoic acid



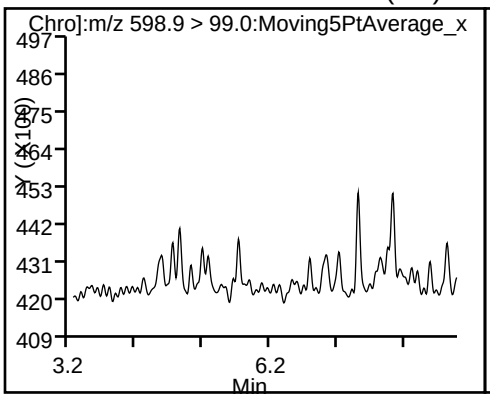
23 Perfluorodecanoic acid



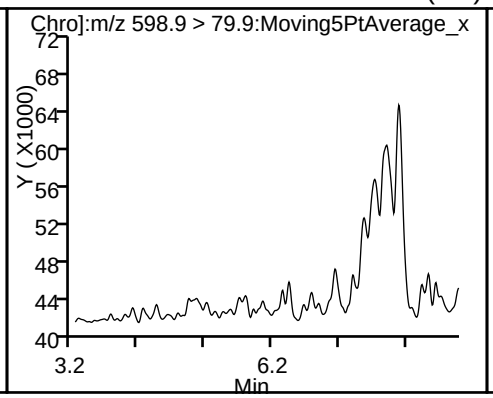
25 Perfluorodecane Sulfonate (ND)



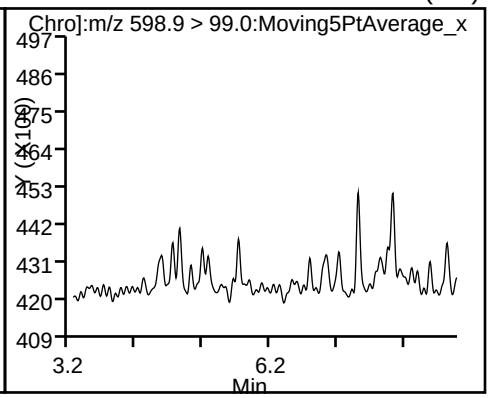
25 Perfluorodecane Sulfonate (ND)



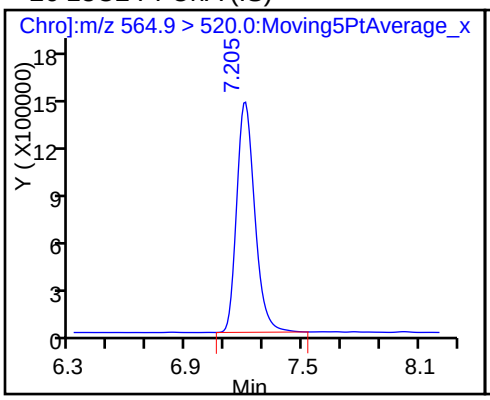
24 Perfluorodecane Sulfonic acid (ND)



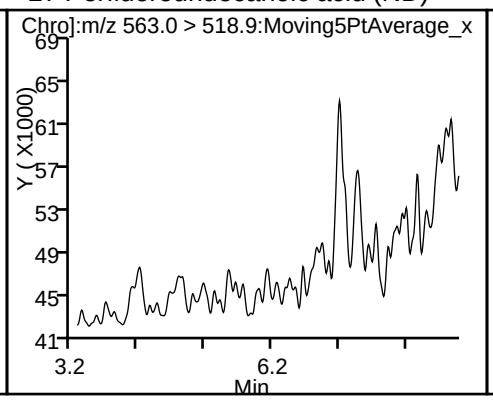
24 Perfluorodecane Sulfonic acid (ND)



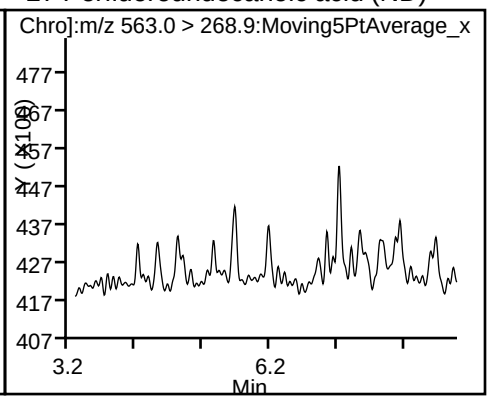
* 26 13C2 PFUnA (IS)



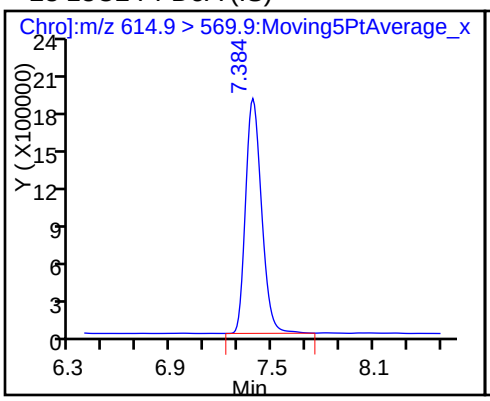
27 Perfluoroundecanoic acid (ND)



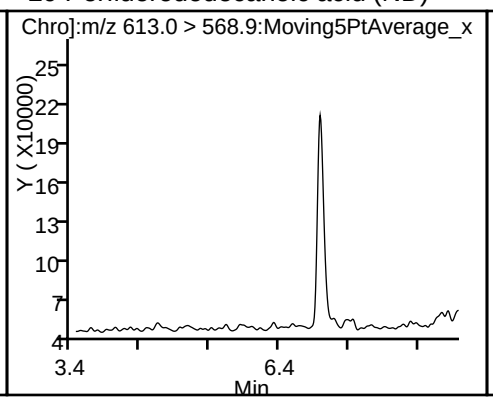
27 Perfluoroundecanoic acid (ND)



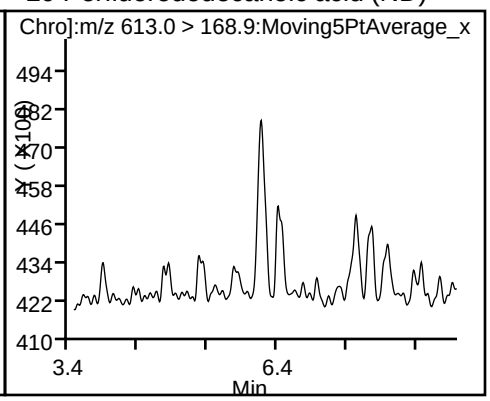
* 28 13C2 PFDoA (IS)



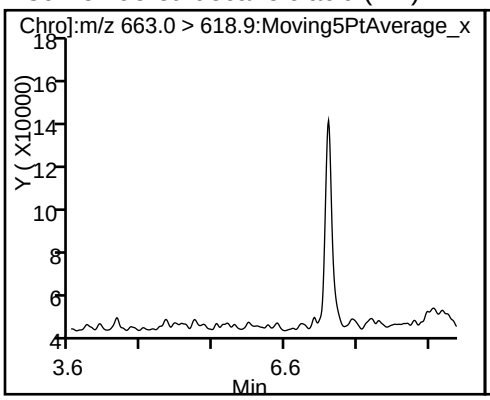
29 Perfluorododecanoic acid (ND)



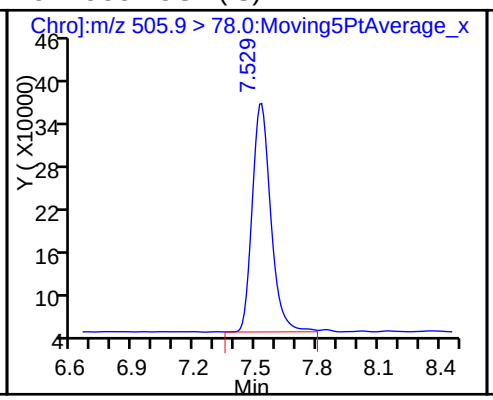
29 Perfluorododecanoic acid (ND)



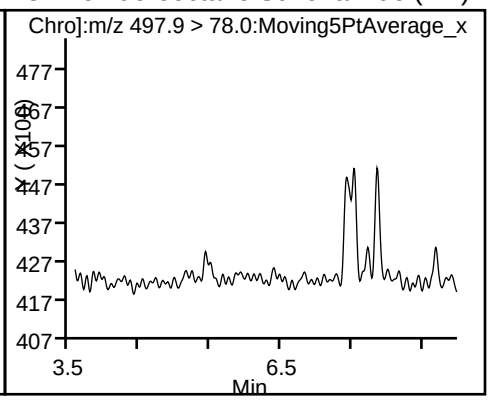
30 Perfluorotridecanoic acid (ND)



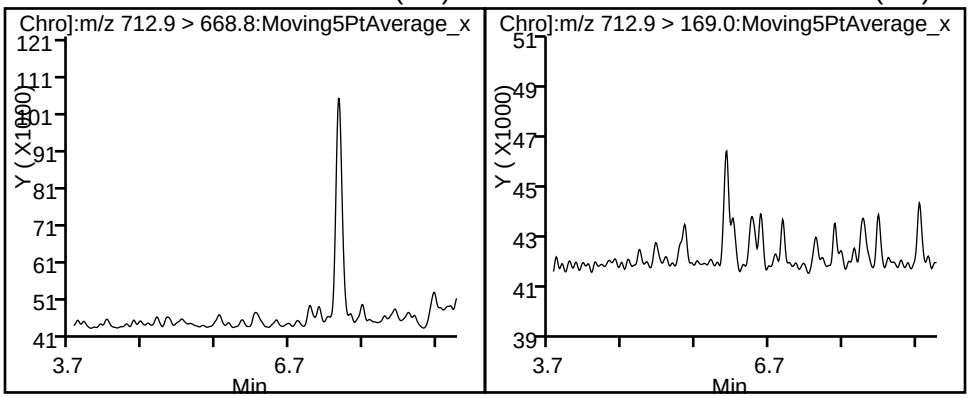
* 31 13C8 FOSA (IS)



32 Perfluorooctane Sulfonamide (ND)



33 Perfluorotetradecanoic acid (ND) 33 Perfluorotetradecanoic acid (ND)



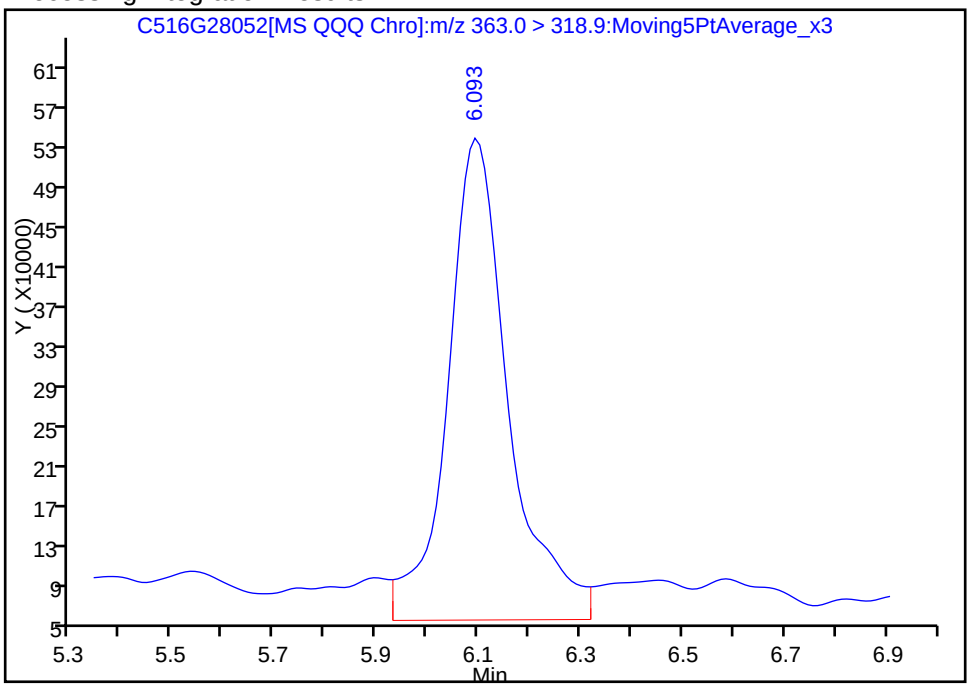
TestAmerica Denver

Data File:	\\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28052.d				
Injection Date:	28-Jul-2016 18:45:50	Instrument ID:	LC_LCMS5		
Lims ID:	280-85298-E-1-A	Lab Sample ID:	280-85298-1		
Client ID:	SWF-OF-013				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	8
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		
Column:		Detector	MS QQQ		

8 Perfluoroheptanoic acid, CAS: 375-85-9

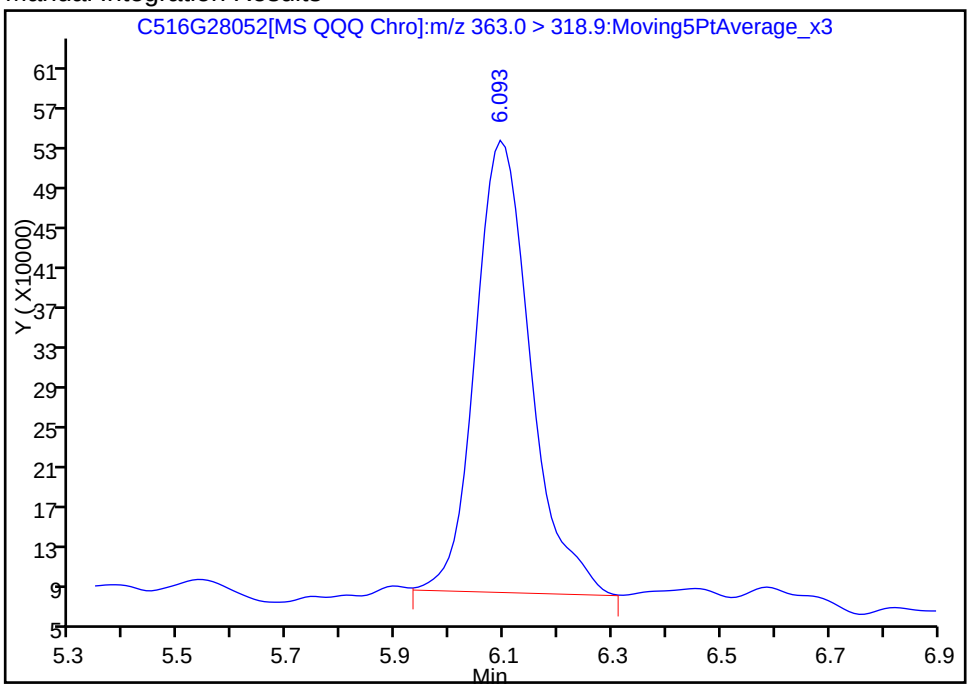
Processing Integration Results

RT: 6.09
Area: 3992439
Amount: 1.713960
Amount Units: ug/L



Manual Integration Results

RT: 6.09
Area: 3166944
Amount: 1.352660
Amount Units: ug/L



Reviewer: meyera, 29-Jul-2016 09:42:40
Audit Action: Manually Integrated
Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: SWF-OF | Lab Sample ID: 280-85298-2

Matrix: Water | Lab File ID: PC516G18049.d

Analysis Method: DV-LC-0012 | Date Collected: 07/05/2016 11:30

Extraction Method: 3535 | Date Extracted: 07/16/2016 07:25

Sample wt/vol: 252(mL) | Date Analyzed: 07/18/2016 21:43

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 334166 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.0082	U *	0.020	0.0082
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.013	U	0.030	0.013
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.015	J	0.030	0.0069
375-95-1	Perfluorononanoic acid (PFNA)	0.017	U	0.040	0.017
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.013	U	0.030	0.013
335-67-1	Perfluorooctanoic acid (PFOA)	0.0097	U	0.020	0.0097

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	103		60-155
STL01054	13C8 PFOS	97		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18049.d
Lims ID: 280-85298-B-2-A Lab Sample ID: 280-85298-2
Client ID: SWF-OF
Sample Type: Client
Inject. Date: 18-Jul-2016 21:43:20 ALS Bottle#: 0 Worklist Smp#: 44
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85298-B-2-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 19-Jul-2016 15:53:35 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK035

First Level Reviewer: fiedlerh Date: 19-Jul-2016 14:22:08

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.219	4.276	-0.057		33117332	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.431				ND			
298.9 > 98.9		5.431							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.875	5.894	-0.019		19918571	10.0			
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.301	6.320	-0.019	0.949	752376	0.2549			
363.0 > 168.9	6.301	6.320	-0.019	0.949	156594		4.80(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.300	6.329	-0.029		2314144	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.301	6.320	-0.019	1.000	800947	0.7677			R
398.9 > 98.9	6.310	6.320	-0.010	1.002	216359		3.70(1.30-2.41)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.641	6.660	-0.019	1.000	25117551	10.3			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.641	6.669	-0.028		30096619	10.0			
16 Perfluorooctanoic acid									R
413.0 > 368.9	6.641	6.660	-0.019	1.000	901723	0.2179			R
413.0 > 169.0	6.632	6.660	-0.028	0.999	423911		2.13(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.913	6.932	-0.019	1.001	4558059	9.31			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.904	6.932	-0.028		7651995	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.866	6.932	-0.066	0.995	309989	0.2607			R
498.9 > 98.9	6.904	6.932	-0.028	1.000	66970		4.63(1.31-2.43)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.933	6.952	-0.019		24543527	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9		6.952				ND			
463.0 > 218.9		6.952							
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.168	7.196	-0.028		21504872	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.376	7.395	-0.019		10981435	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.555	7.573	-0.019		17961687	10.0			
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.699	7.728	-0.029		1221370	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND
R - Failed Signal Ratio Test
s - Failed ISTD Recovery Test

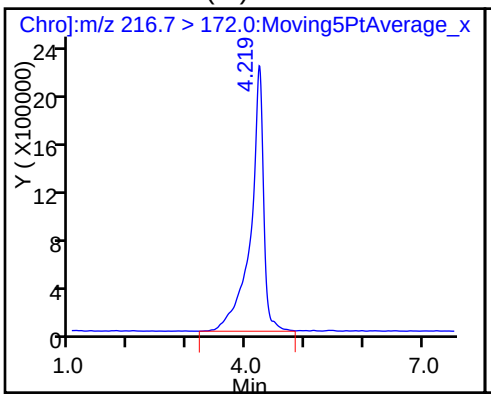
Report Date: 19-Jul-2016 15:53:42 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

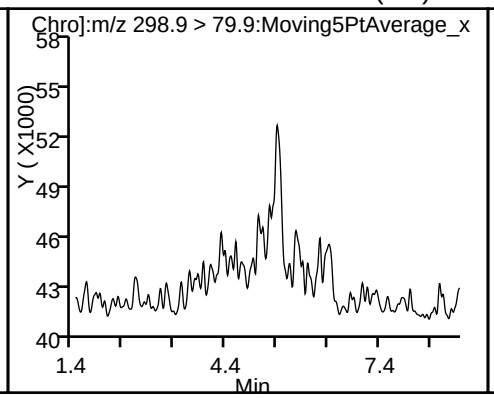
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18049.d

Injection Date:	18-Jul-2016 21:43:20	Instrument ID:	LC_LCMS5		
Lims ID:	280-85298-B-2-A	Lab Sample ID:	280-85298-2		
Client ID:	SWF-OF				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	44
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

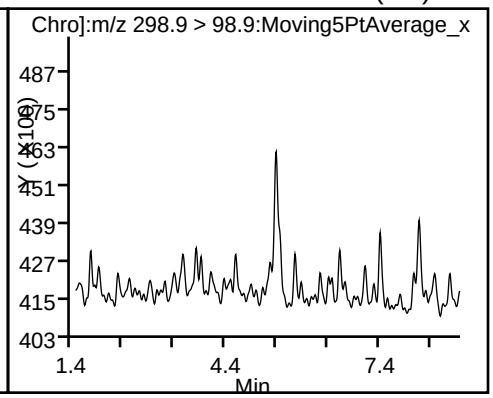
* 1 13C4 PFBA (IS)



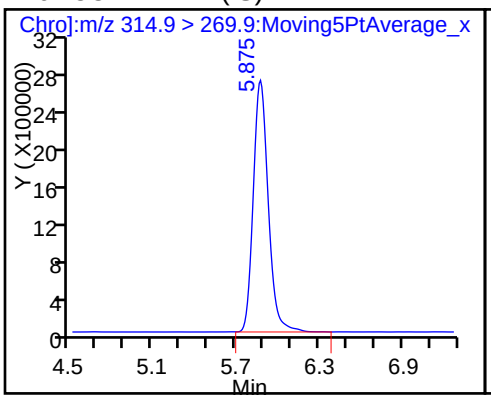
4 Perfluorobutane Sulfonate (ND)



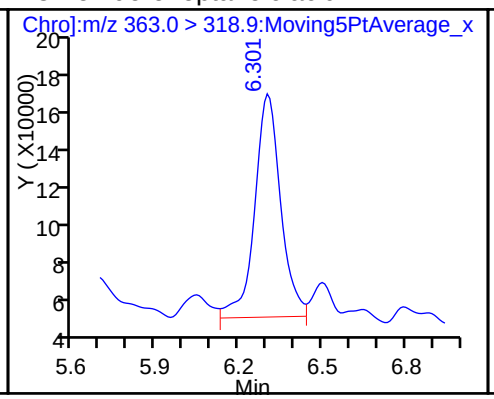
4 Perfluorobutane Sulfonate (ND)



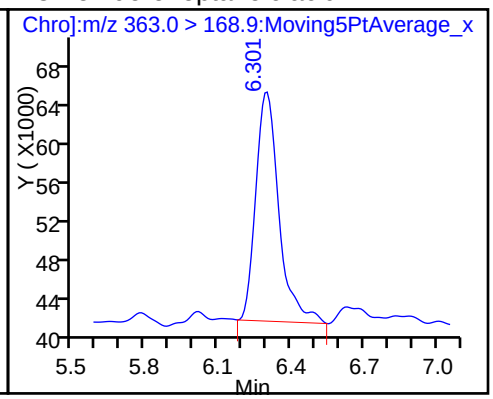
* 6 13C2 PFHxA (IS)



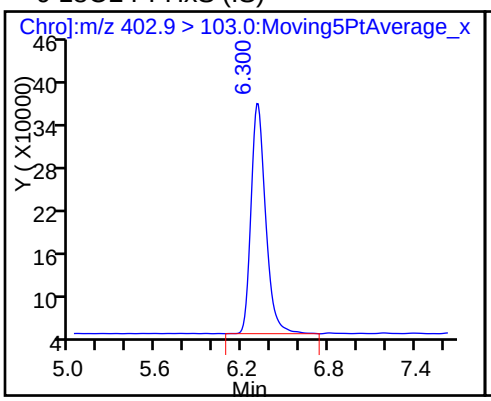
8 Perfluoroheptanoic acid



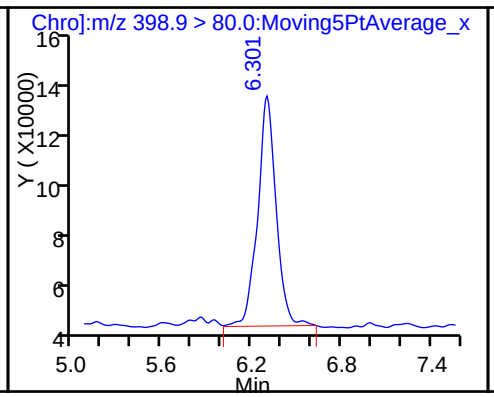
8 Perfluoroheptanoic acid



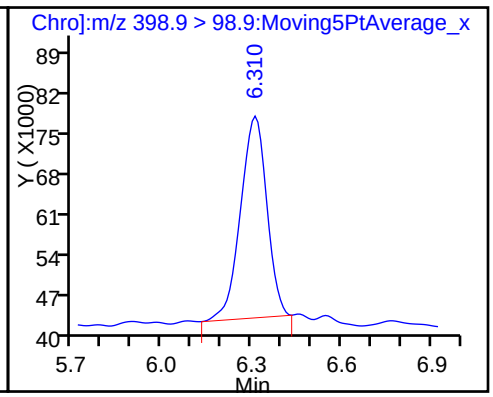
* 9 18O2 PFHxS (IS)



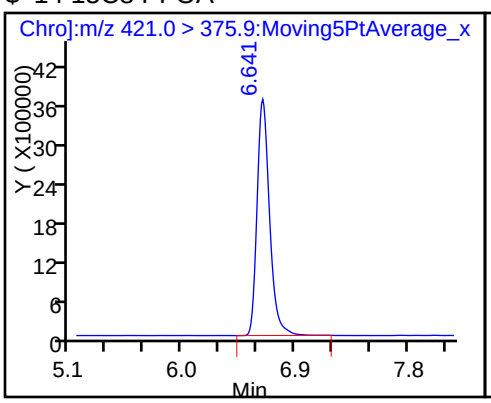
10 Perfluorohexane Sulfonate



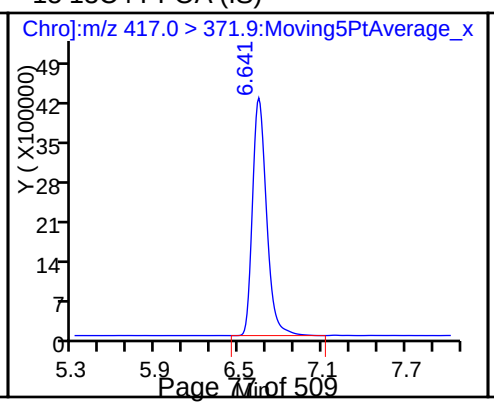
10 Perfluorohexane Sulfonate



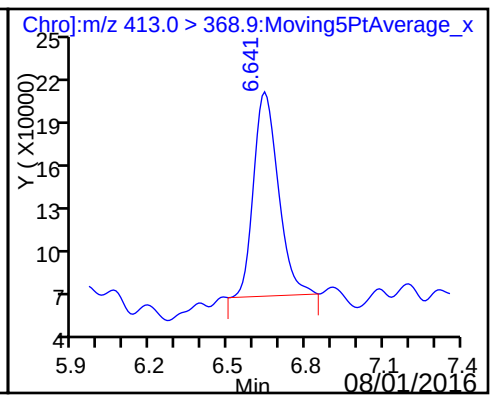
$ 14 13C8 PFOA



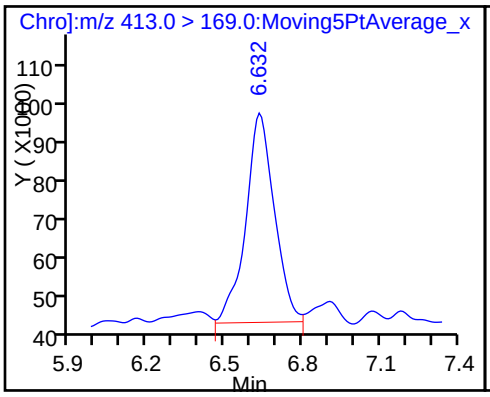
* 15 13C4 PFOA (IS)



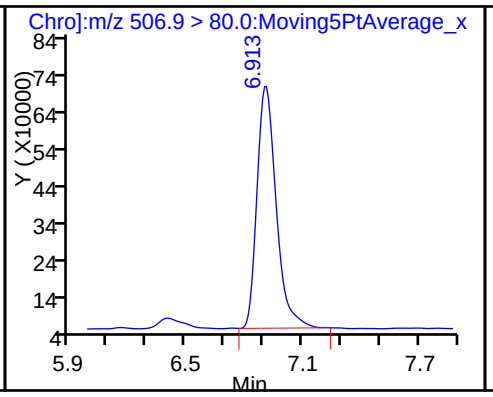
16 Perfluorooctanoic acid



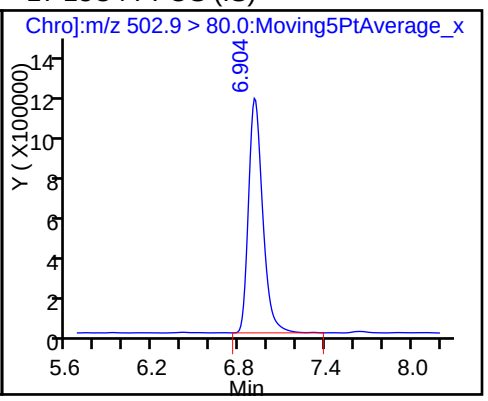
16 Perfluorooctanoic acid



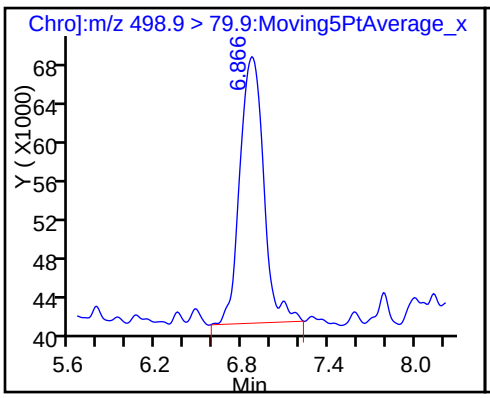
$ 18 13C8 PFOS



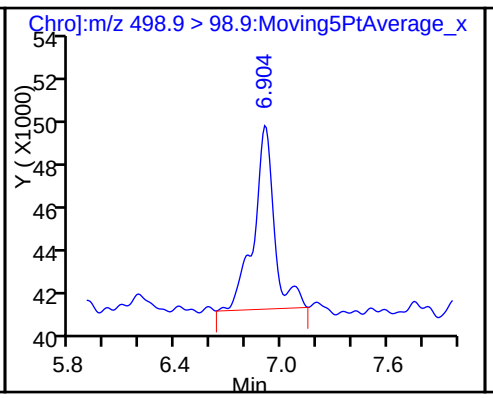
* 17 13C4 PFOS (IS)



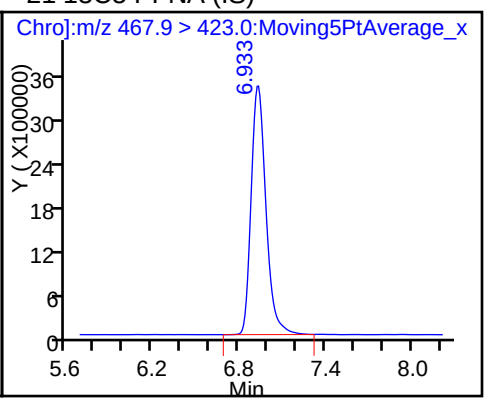
19 Perfluorooctane sulfonic acid



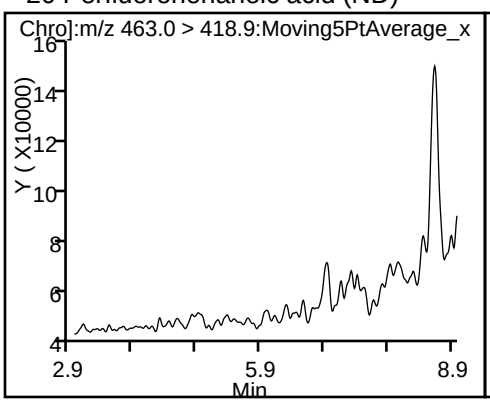
19 Perfluorooctane sulfonic acid



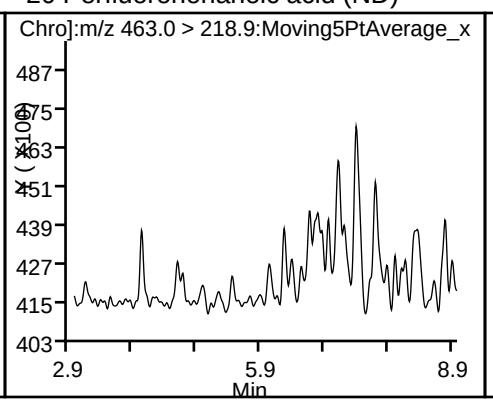
* 21 13C5 PFNA (IS)



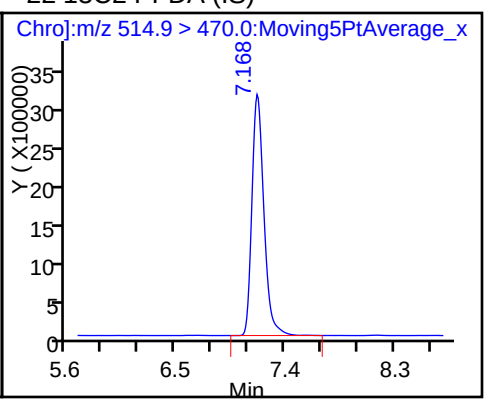
20 Perfluorononanoic acid (ND)



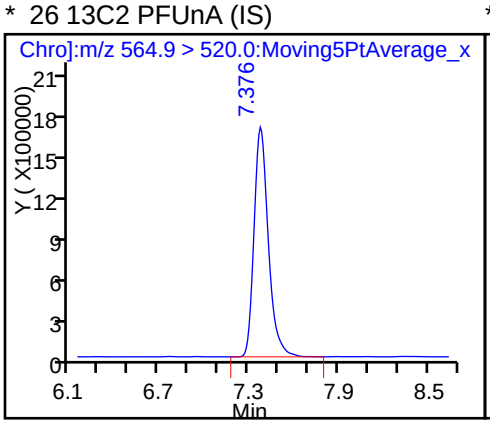
20 Perfluorononanoic acid (ND)



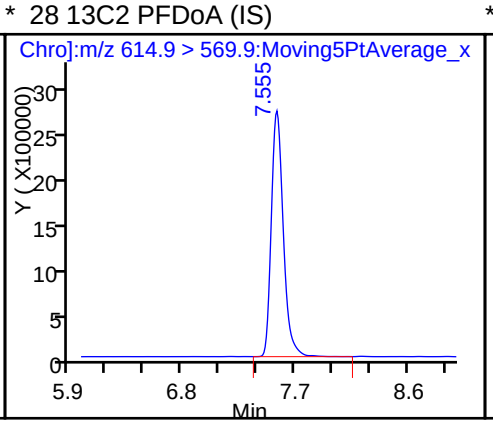
* 22 13C2 PFDA (IS)



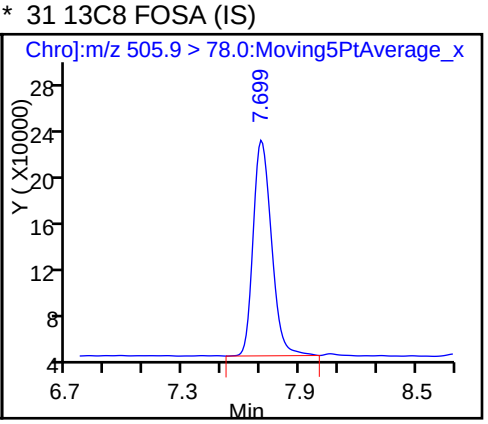
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: SWF-OF RE | Lab Sample ID: 280-85298-2 RE

Matrix: Water | Lab File ID: PC516G28055.d

Analysis Method: DV-LC-0012 | Date Collected: 07/05/2016 11:30

Extraction Method: 3535 | Date Extracted: 07/25/2016 10:50

Sample wt/vol: 275.8(mL) | Date Analyzed: 07/28/2016 19:22

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 335652 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	*Perfluorobutane Sulfonate (PFBS)*	*0.0075*	*U H*	*0.018*	*0.0075*
375-85-9	*Perfluoroheptanoic acid (PFHpA)*	*0.012*	*U H*	*0.027*	*0.012*
108427-53-8	*Perfluorohexane Sulfonate (PFHxS)*	*0.017*	*J H*	*0.027*	*0.0063*
375-95-1	*Perfluorononanoic acid (PFNA)*	*0.016*	*U H*	*0.036*	*0.016*
1763-23-1	*Perfluorooctanesulfonic acid (PFOS)*	*0.012*	*U H*	*0.027*	*0.012*
335-67-1	*Perfluorooctanoic acid (PFOA)*	*0.0089*	*U H*	*0.018*	*0.0089*

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	104		60-155
STL01054	13C8 PFOS	100		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28055.d
Lims ID: 280-85298-A-2-A Lab Sample ID: 280-85298-2
Client ID: SWF-OF
Sample Type: Client
Inject. Date: 28-Jul-2016 19:22:45 ALS Bottle#: 0 Worklist Smp#: 11
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85298-A-2-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 29-Jul-2016 10:36:50 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK010

First Level Reviewer: meyera Date: 29-Jul-2016 09:43:41

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	3.954	4.067	-0.113		21070128	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.213	5.260	-0.047	0.850	128751	0.1135			
298.9 > 98.9	5.222	5.260	-0.038	0.852	47683		2.70(1.80-3.35)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.686	5.724	-0.038		17033971	10.0			
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.121	6.159	-0.038	0.946	618928	0.2446			
363.0 > 168.9	6.121	6.159	-0.038	0.946	129085		4.79(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.130	6.168	-0.038		2210636	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.121	6.168	-0.047	0.998	901235	0.9195			R
398.9 > 98.9	6.102	6.168	-0.066	0.995	301504		2.99(1.30-2.41)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.470	6.508	-0.038	1.000	21234628	10.2			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.470	6.508	-0.038		25672216	10.0			
16 Perfluorooctanoic acid									R
413.0 > 368.9	6.471	6.508	-0.037	1.000	1164974	0.3670			R
413.0 > 169.0	6.471	6.508	-0.037	1.000	440691		2.64(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.752	6.780	-0.028	1.001	4537145	9.27			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.743	6.781	-0.038		7650775	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.667	6.781	-0.114	0.989	449942	0.4111			R
498.9 > 98.9	6.743	6.781	-0.038	1.000	101969		4.41(1.31-2.43)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.763	6.801	-0.037		20552981	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9		6.801				ND			
463.0 > 218.9		6.801							
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.007	7.045	-0.038		18896240	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.215	7.262	-0.047		8770778	10.0			
* 28 13C2 PFDoA (IS)									s
614.9 > 569.9	7.393	7.441	-0.048		13142446	10.0			
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.548	7.557	-0.009		1818625	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND
R - Failed Signal Ratio Test
s - Failed ISTD Recovery Test

Report Date: 29-Jul-2016 10:37:17 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28055.d

Injection Date: 28-Jul-2016 19:22:45 Instrument ID: LC_LCMS5

Lims ID: 280-85298-A-2-A Lab Sample ID: 280-85298-2

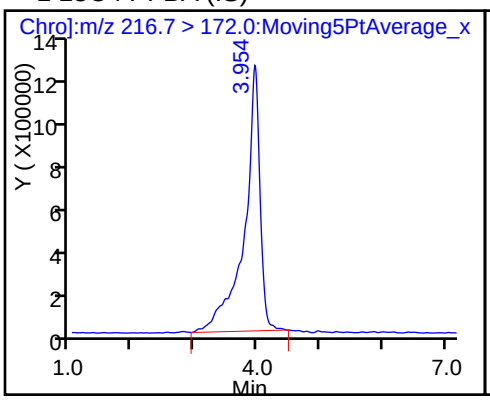
Client ID: SWF-OF

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 11

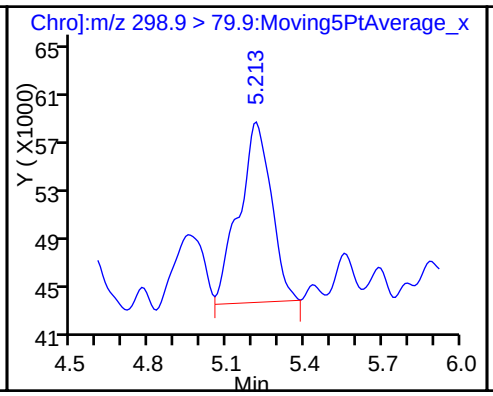
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

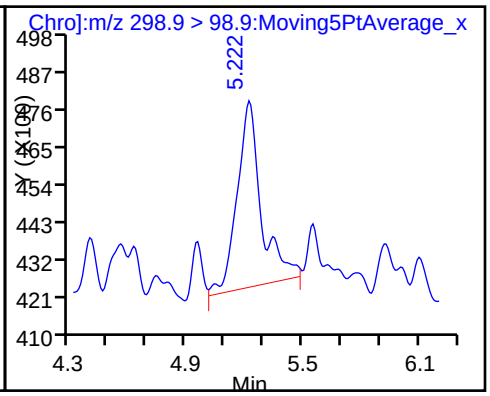
* 1 13C4 PFBA (IS)



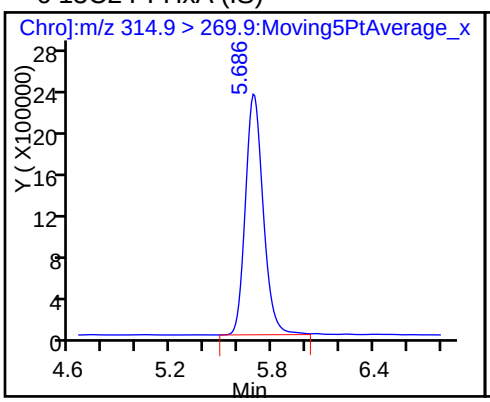
4 Perfluorobutane Sulfonate



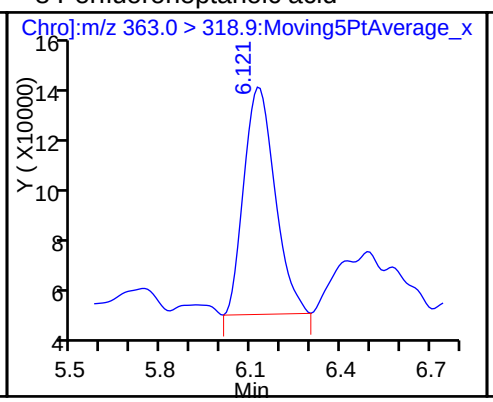
4 Perfluorobutane Sulfonate



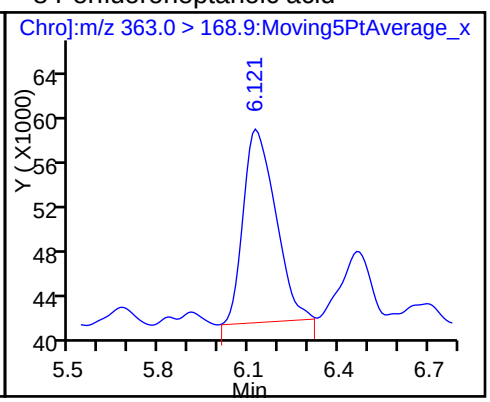
* 6 13C2 PFHxA (IS)



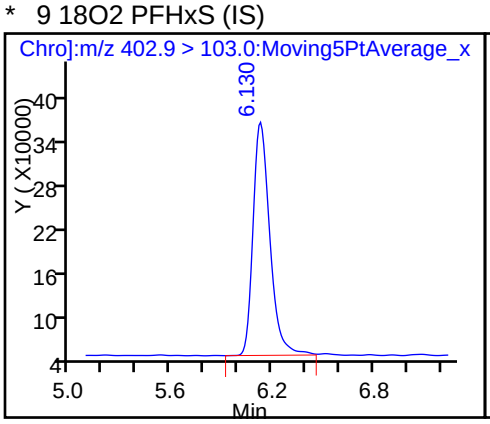
8 Perfluoroheptanoic acid



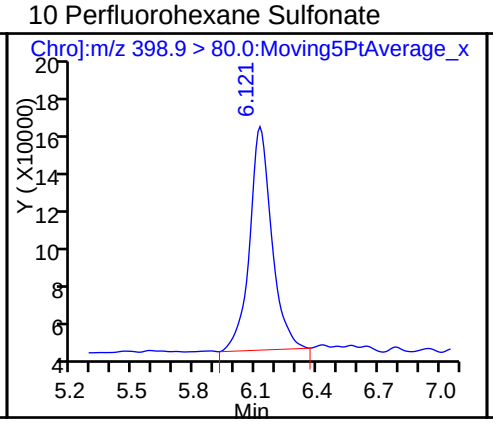
8 Perfluoroheptanoic acid



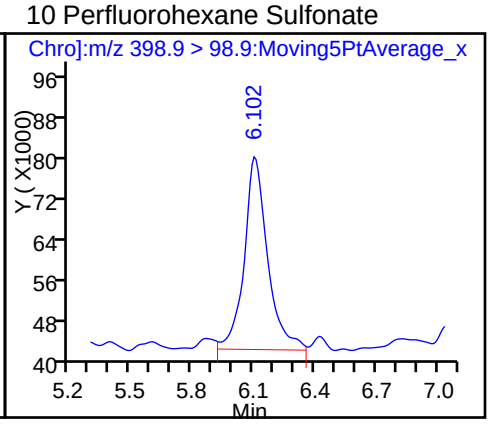
* 9 18O2 PFHxS (IS)



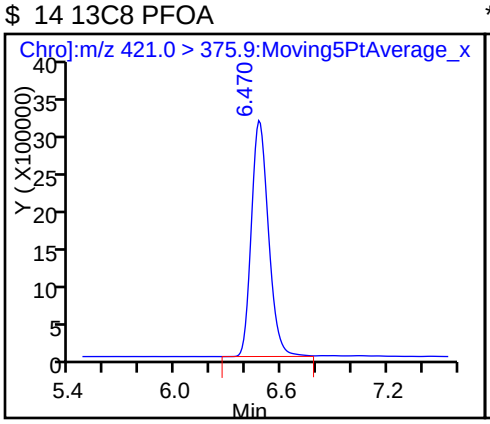
10 Perfluorohexane Sulfonate



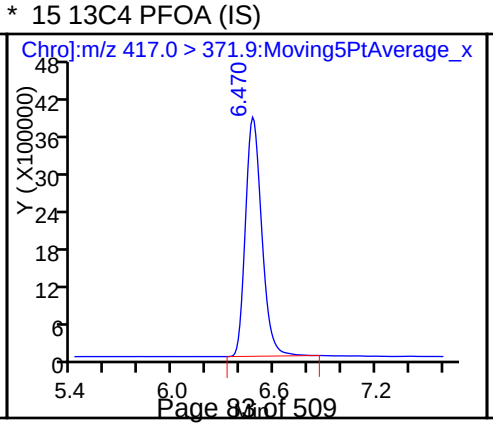
10 Perfluorohexane Sulfonate



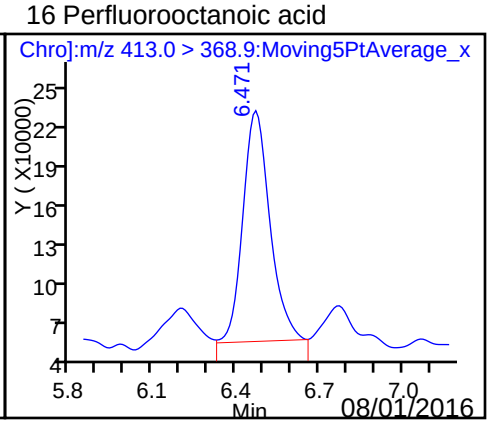
$ 14 13C8 PFOA



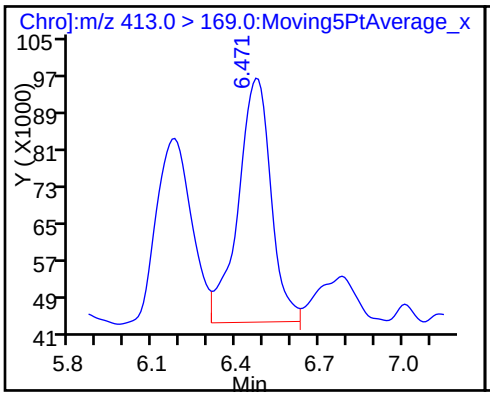
* 15 13C4 PFOA (IS)



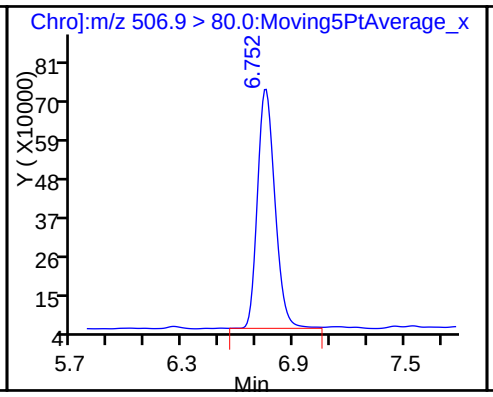
16 Perfluorooctanoic acid



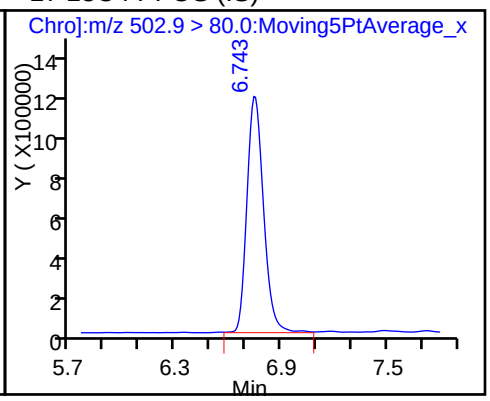
16 Perfluorooctanoic acid



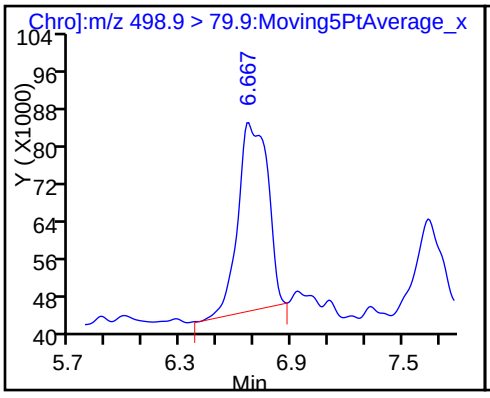
$ 18 13C8 PFOS



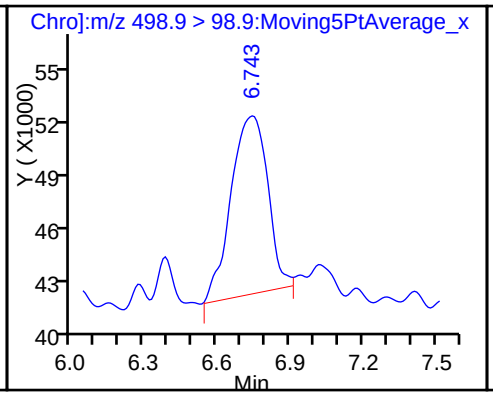
* 17 13C4 PFOS (IS)



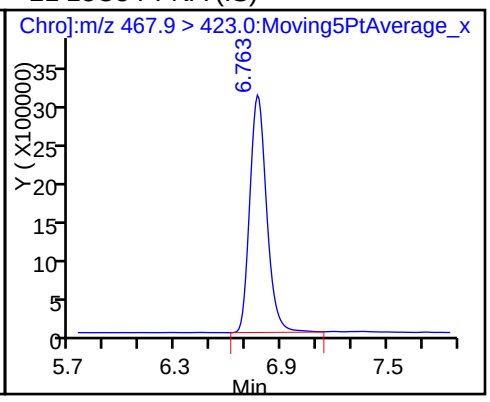
19 Perfluorooctane sulfonic acid



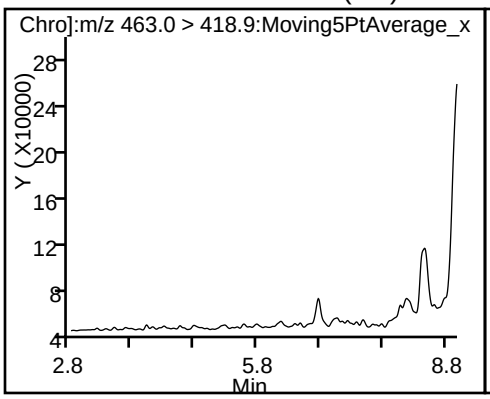
19 Perfluorooctane sulfonic acid



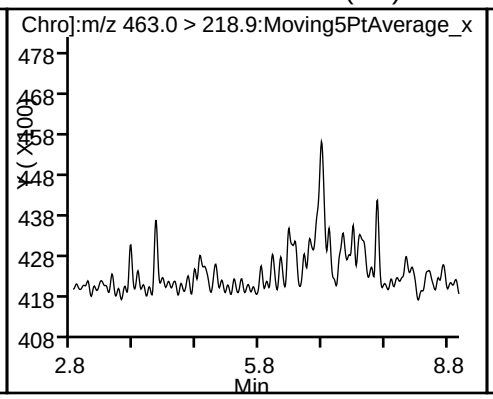
* 21 13C5 PFNA (IS)



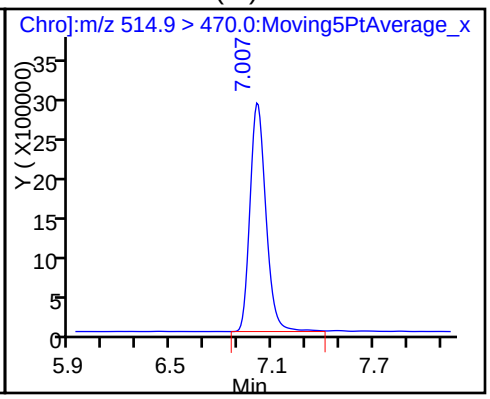
20 Perfluorononanoic acid (ND)



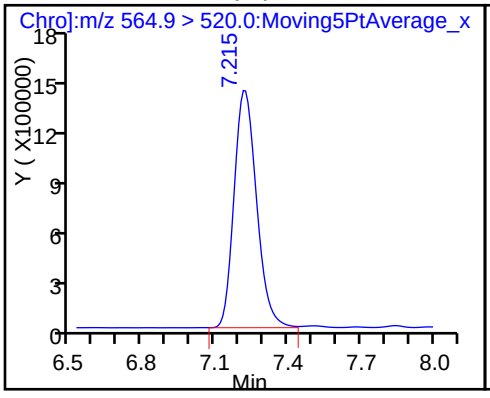
20 Perfluorononanoic acid (ND)



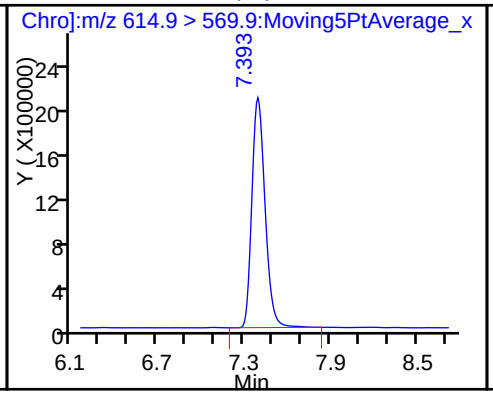
* 22 13C2 PFDA (IS)



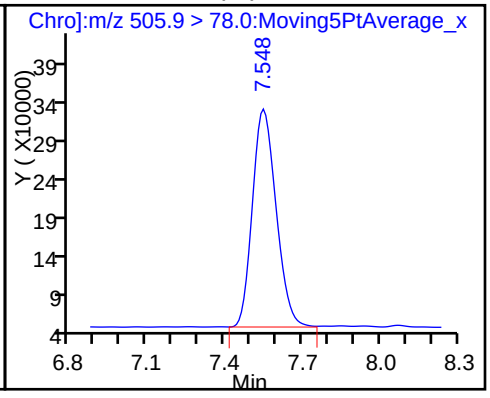
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: SWF-OF-011 | Lab Sample ID: 280-85298-3

Matrix: Water | Lab File ID: PC516G18050.d

Analysis Method: DV-LC-0012 | Date Collected: 07/05/2016 11:40

Extraction Method: 3535 | Date Extracted: 07/16/2016 07:25

Sample wt/vol: 255.3(mL) | Date Analyzed: 07/18/2016 21:55

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 334166 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.0081	U *	0.020	0.0081
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.013	U	0.029	0.013
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.014	J	0.029	0.0068
375-95-1	Perfluorononanoic acid (PFNA)	0.017	U	0.039	0.017
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.013	U	0.029	0.013
335-67-1	Perfluorooctanoic acid (PFOA)	0.0096	U	0.020	0.0096

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	102		60-155
STL01054	13C8 PFOS	99		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18050.d
Lims ID: 280-85298-B-3-A Lab Sample ID: 280-85298-3
Client ID: SWF-OF-011
Sample Type: Client
Inject. Date: 18-Jul-2016 21:55:38 ALS Bottle#: 0 Worklist Smp#: 45
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85298-B-3-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 19-Jul-2016 15:53:35 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK035

First Level Reviewer: fiedlerh Date: 19-Jul-2016 14:23:09

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.077	4.276	-0.199		35071191	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.298	5.431	-0.133	0.854	137179	0.1020			
298.9 > 98.9	5.308	5.431	-0.123	0.855	55842		2.46(1.80-3.35)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.762	5.894	-0.132		22144720	10.0			
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.187	6.320	-0.133	0.945	871250	0.2659			
363.0 > 168.9	6.178	6.320	-0.142	0.944	232277		3.75(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.206	6.329	-0.123		2644435	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.196	6.320	-0.124	0.999	875942	0.7310			R
398.9 > 98.9	6.215	6.320	-0.105	1.002	293817		2.98(1.30-2.41)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.536	6.660	-0.124	0.999	27682637	10.2			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.546	6.669	-0.123		33569051	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.546	6.660	-0.114	1.000	1439394	0.3428			
413.0 > 169.0	6.546	6.660	-0.114	1.000	371905		3.87(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.809	6.932	-0.123	1.000	5224902	9.47			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.809	6.932	-0.123		8629794	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.790	6.932	-0.142	0.997	391679	0.3008			R
498.9 > 98.9	6.828	6.932	-0.104	1.003	111397		3.52(1.31-2.43)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.829	6.952	-0.123		27237328	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9		6.952				ND			
463.0 > 218.9		6.952							
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.073	7.196	-0.123		24991201	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.281	7.395	-0.114		13316168	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.460	7.573	-0.113		24053033	10.0			
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.595	7.728	-0.133		1463499	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND
R - Failed Signal Ratio Test
s - Failed ISTD Recovery Test

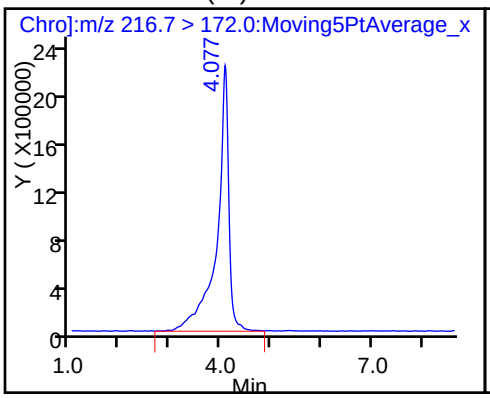
Report Date: 19-Jul-2016 15:53:44 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

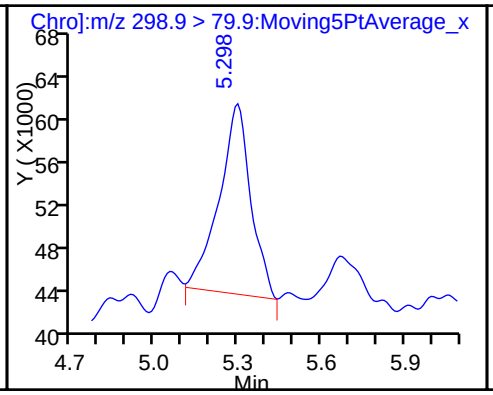
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18050.d

Injection Date:	18-Jul-2016 21:55:38	Instrument ID:	LC_LCMS5		
Lims ID:	280-85298-B-3-A	Lab Sample ID:	280-85298-3		
Client ID:	SWF-OF-011				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	45
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

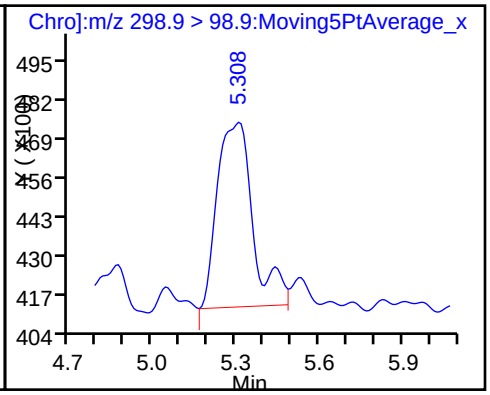
* 1 13C4 PFBA (IS)



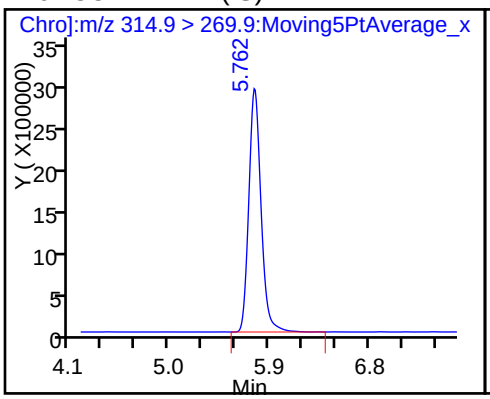
4 Perfluorobutane Sulfonate



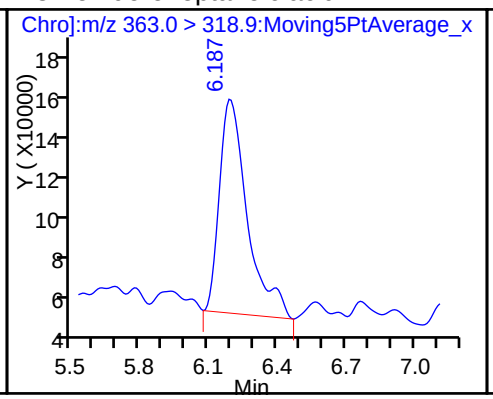
4 Perfluorobutane Sulfonate



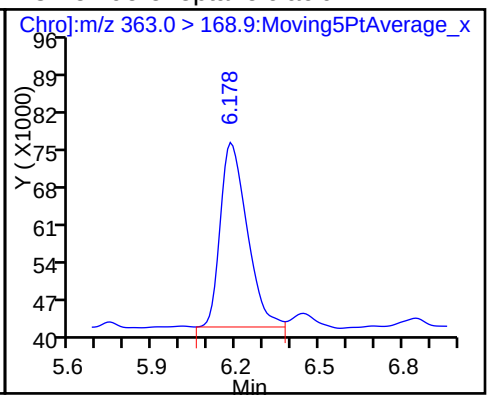
* 6 13C2 PFHxA (IS)



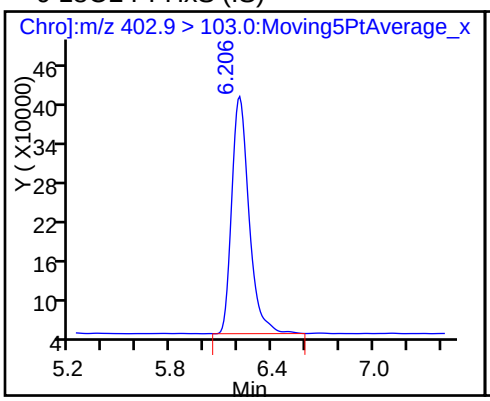
8 Perfluoroheptanoic acid



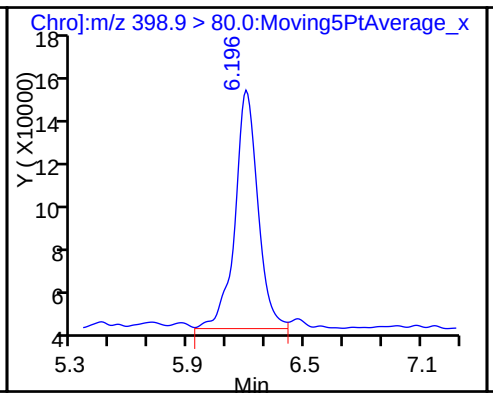
8 Perfluoroheptanoic acid



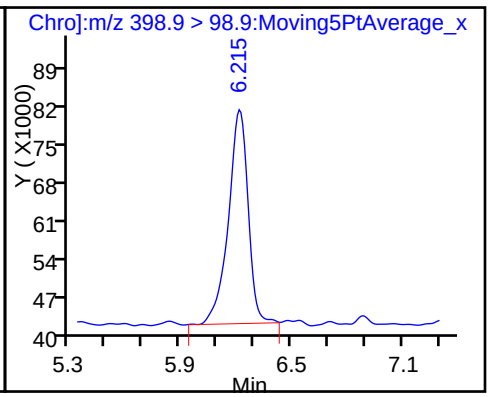
* 9 18O2 PFHxS (IS)



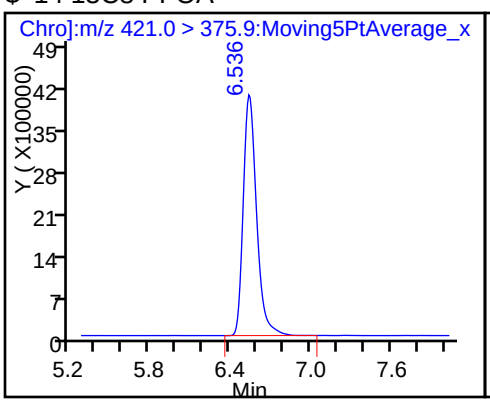
10 Perfluorohexane Sulfonate



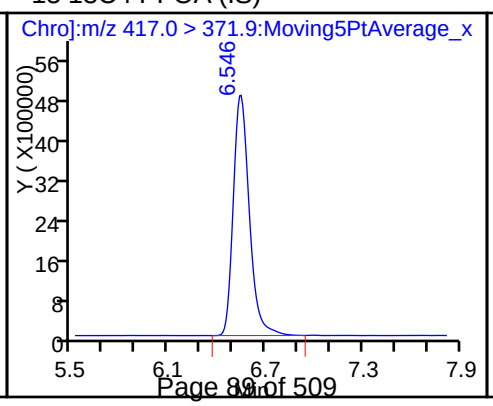
10 Perfluorohexane Sulfonate



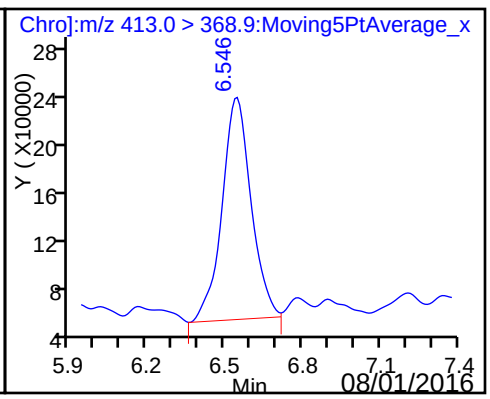
$ 14 13C8 PFOA



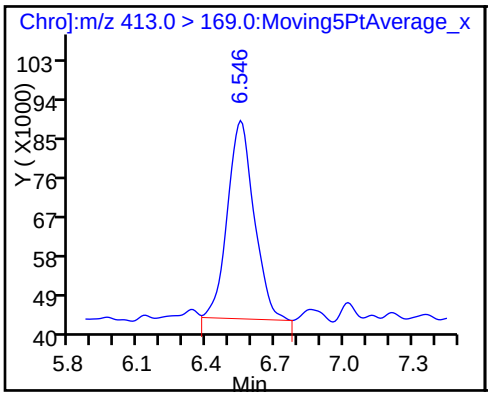
* 15 13C4 PFOA (IS)



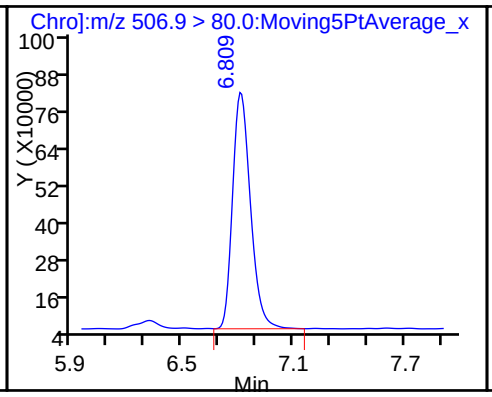
16 Perfluorooctanoic acid



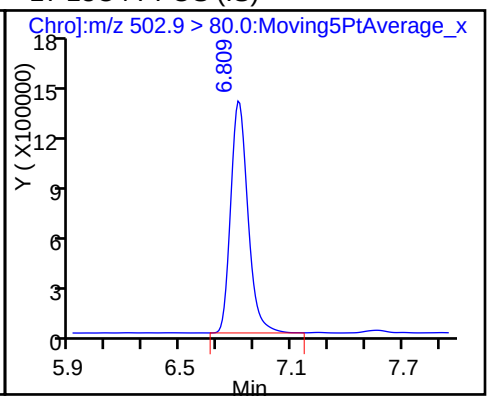
16 Perfluorooctanoic acid



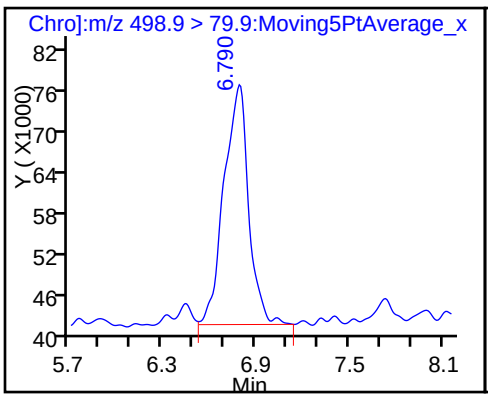
$ 18 13C8 PFOS



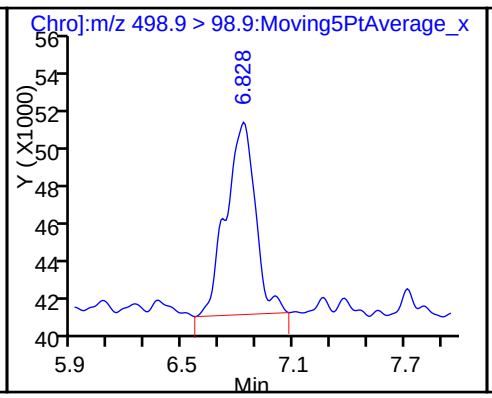
* 17 13C4 PFOS (IS)



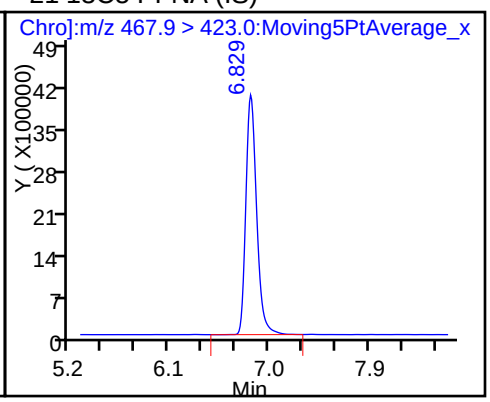
19 Perfluorooctane sulfonic acid



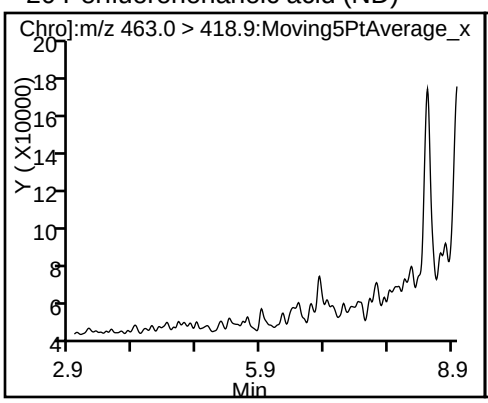
19 Perfluorooctane sulfonic acid



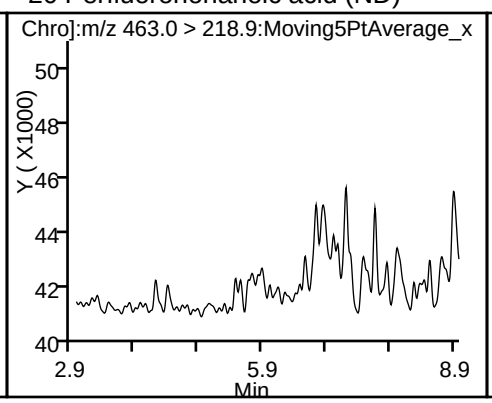
* 21 13C5 PFNA (IS)



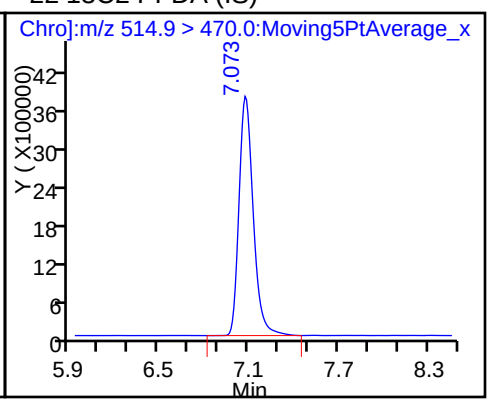
20 Perfluorononanoic acid (ND)



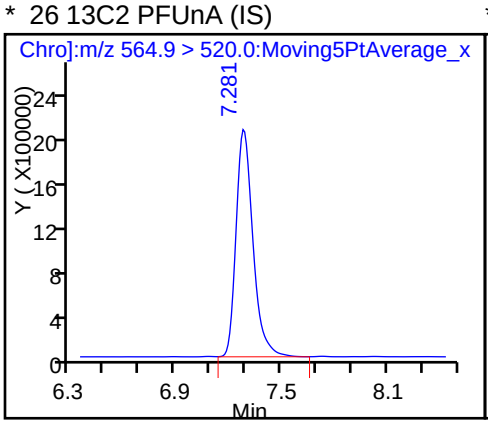
20 Perfluorononanoic acid (ND)



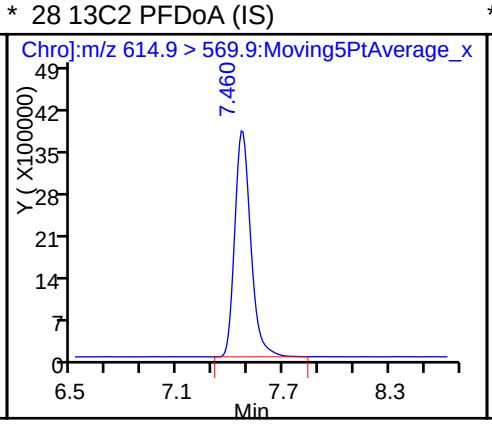
* 22 13C2 PFDA (IS)



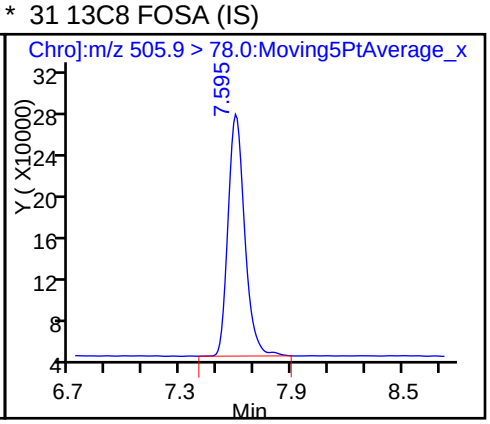
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: SWF-OF-011 RE | Lab Sample ID: 280-85298-3 RE

Matrix: Water | Lab File ID: PC516G28056.d

Analysis Method: DV-LC-0012 | Date Collected: 07/05/2016 11:40

Extraction Method: 3535 | Date Extracted: 07/25/2016 10:50

Sample wt/vol: 250.1(mL) | Date Analyzed: 07/28/2016 19:35

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 335652 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	*Perfluorobutane Sulfonate (PFBS)*	*0.0082*	*U H*	*0.020*	*0.0082*
375-85-9	*Perfluoroheptanoic acid (PFHpA)*	*0.013*	*U H*	*0.030*	*0.013*
108427-53-8	*Perfluorohexane Sulfonate (PFHxS)*	*0.017*	*J H*	*0.030*	*0.0070*
375-95-1	*Perfluorononanoic acid (PFNA)*	*0.017*	*U H*	*0.040*	*0.017*
1763-23-1	*Perfluorooctanesulfonic acid (PFOS)*	*0.013*	*U H*	*0.030*	*0.013*
335-67-1	*Perfluorooctanoic acid (PFOA)*	*0.0098*	*U H*	*0.020*	*0.0098*

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	106		60-155
STL01054	13C8 PFOS	100		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28056.d
Lims ID: 280-85298-A-3-A Lab Sample ID: 280-85298-3
Client ID: SWF-OF-011
Sample Type: Client
Inject. Date: 28-Jul-2016 19:35:04 ALS Bottle#: 0 Worklist Smp#: 12
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85298-A-3-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 29-Jul-2016 10:36:50 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK010

First Level Reviewer: meyera Date: 29-Jul-2016 09:43:55

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	3.897	4.067	-0.170		20553600	10.0			
4 Perfluorobutane Sulfonate									R
298.9 > 79.9	5.166	5.260	-0.094	0.848	100607	0.0920			R
298.9 > 98.9	5.194	5.260	-0.066	0.853	24830		4.05(1.80-3.35)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.648	5.724	-0.076		15758007	10.0			
8 Perfluoroheptanoic acid									R
363.0 > 318.9	6.074	6.159	-0.085	0.943	467054	0.1915			R
363.0 > 168.9	6.083	6.159	-0.076	0.944	175931		2.65(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.092	6.168	-0.076		2170847	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.092	6.168	-0.076	1.000	808036	0.8321			R
398.9 > 98.9	6.102	6.168	-0.066	1.002	304829		2.65(1.30-2.41)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.442	6.508	-0.066	1.000	20164160	10.4			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.442	6.508	-0.066		23952874	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.442	6.508	-0.066	1.000	1092291	0.3692			
413.0 > 169.0	6.442	6.508	-0.066	1.000	331887		3.29(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.714	6.780	-0.066	1.000	4276647	9.24			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.714	6.781	-0.067		7238143	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.696	6.781	-0.085	0.997	210817	0.1671			R
498.9 > 98.9	6.696	6.781	-0.085	0.997	82500		2.56(1.31-2.43)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.734	6.801	-0.066		19442548	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9		6.801				ND			
463.0 > 218.9		6.801							
* 22 13C2 PFDA (IS)									
514.9 > 470.0	6.978	7.045	-0.067		17673101	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.196	7.262	-0.066		7492124	10.0			
* 28 13C2 PFDoA (IS)									s
614.9 > 569.9	7.375	7.441	-0.066		10435090	10.0			
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.529	7.557	-0.028		1422656	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND
R - Failed Signal Ratio Test
s - Failed ISTD Recovery Test

Report Date: 29-Jul-2016 10:37:21 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28056.d

Injection Date: 28-Jul-2016 19:35:04 Instrument ID: LC_LCMS5

Lims ID: 280-85298-A-3-A Lab Sample ID: 280-85298-3

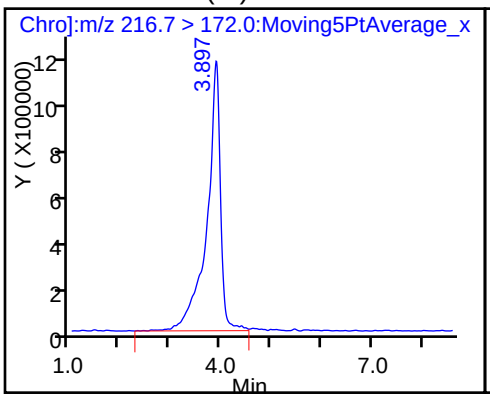
Client ID: SWF-OF-011

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 12

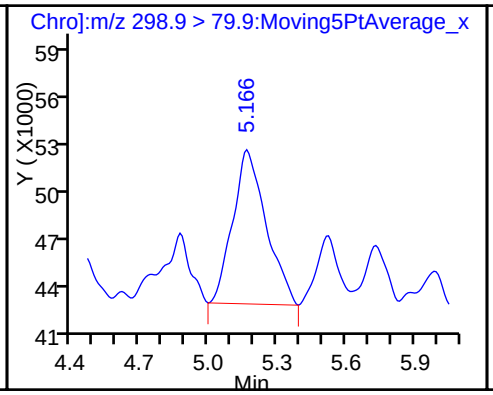
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

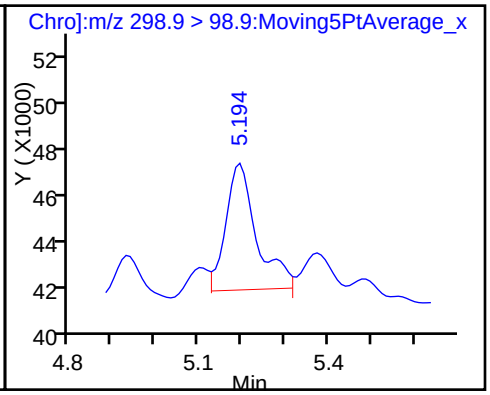
* 1 13C4 PFBA (IS)



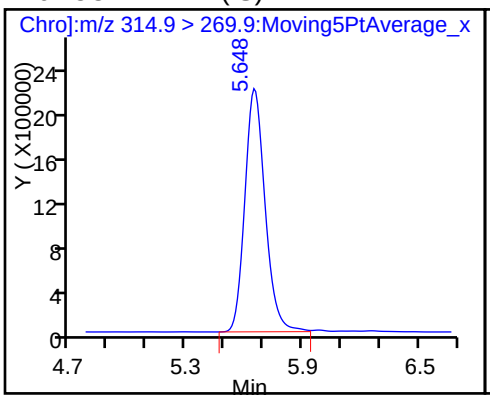
4 Perfluorobutane Sulfonate



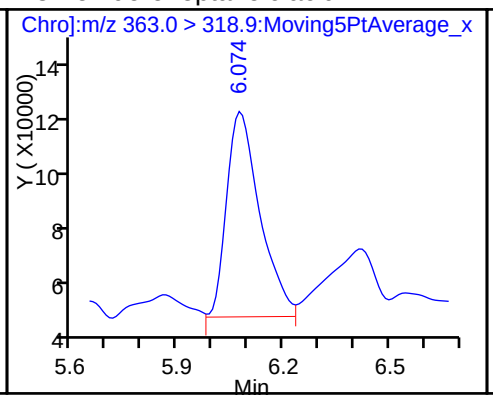
4 Perfluorobutane Sulfonate



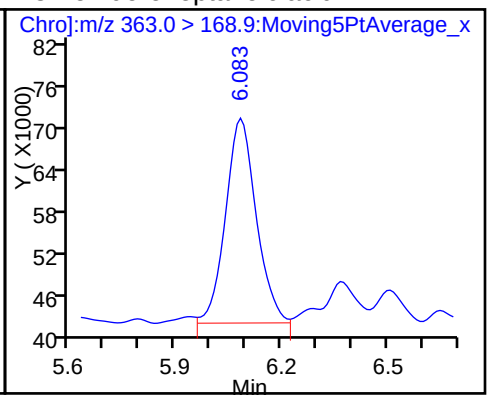
* 6 13C2 PFHxA (IS)



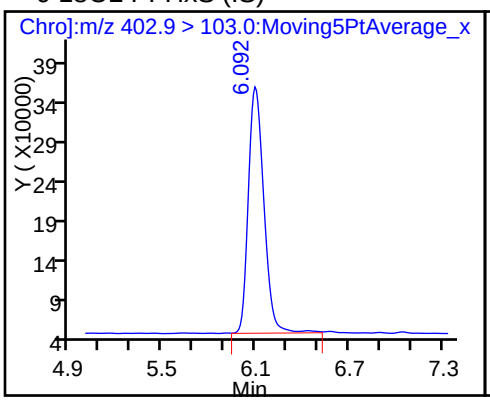
8 Perfluoroheptanoic acid



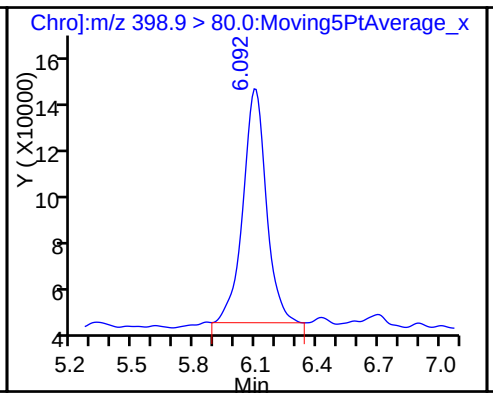
8 Perfluoroheptanoic acid



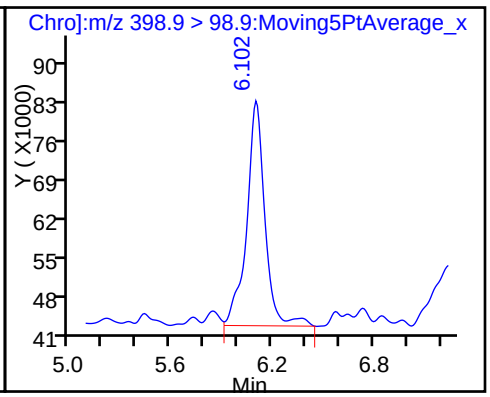
* 9 18O2 PFHxS (IS)



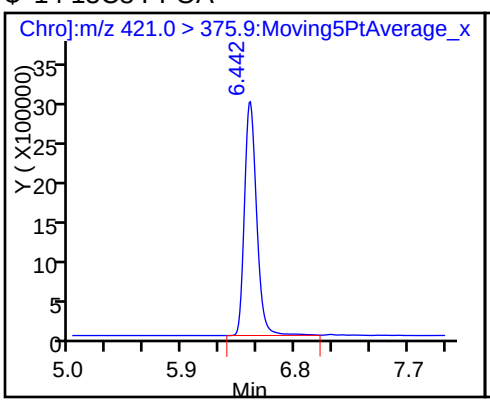
10 Perfluorohexane Sulfonate



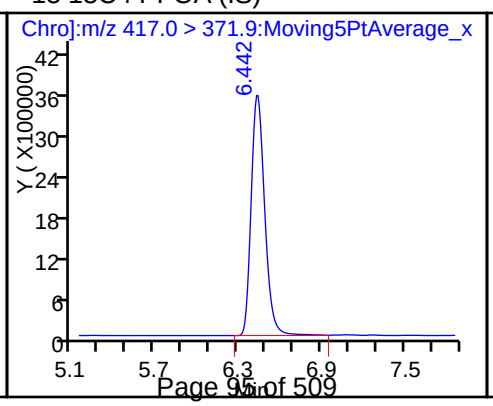
10 Perfluorohexane Sulfonate



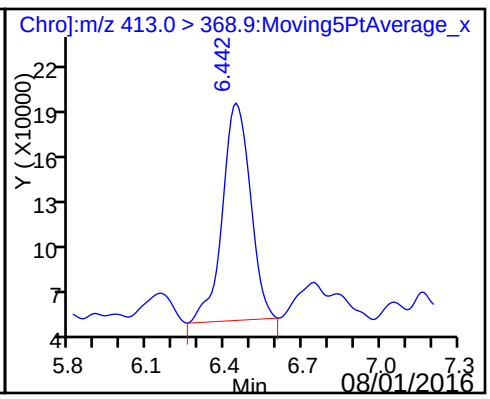
$ 14 13C8 PFOA



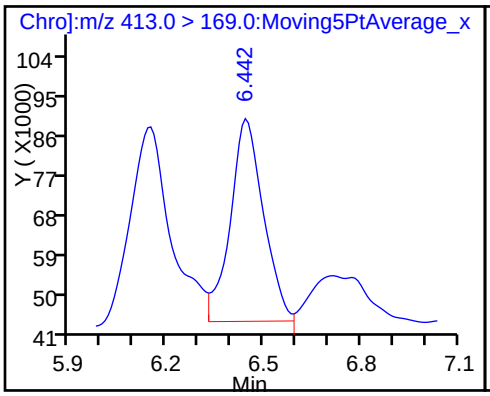
* 15 13C4 PFOA (IS)



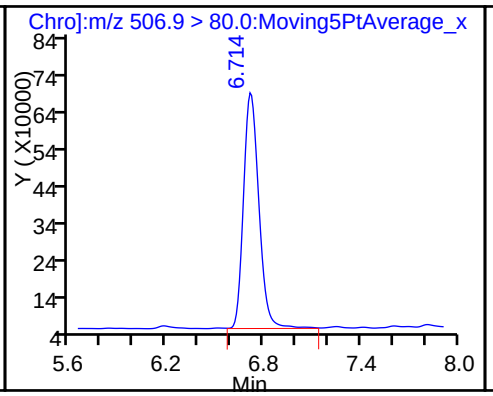
16 Perfluorooctanoic acid



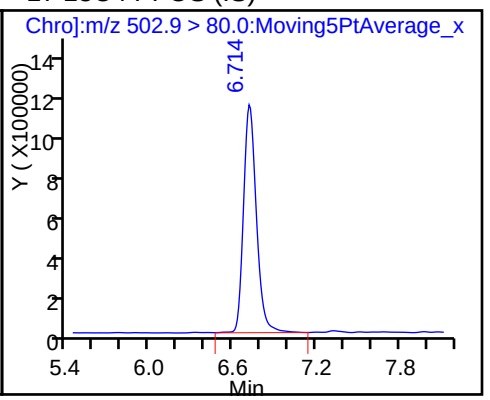
16 Perfluorooctanoic acid



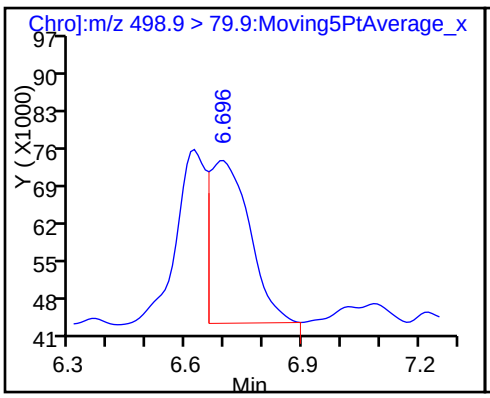
$ 18 13C8 PFOS



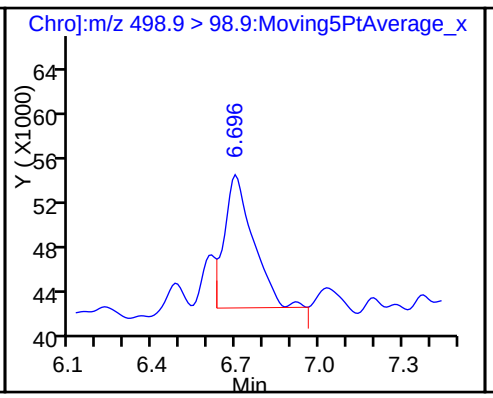
* 17 13C4 PFOS (IS)



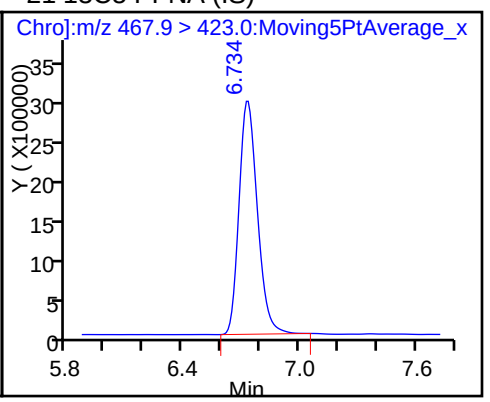
19 Perfluorooctane sulfonic acid



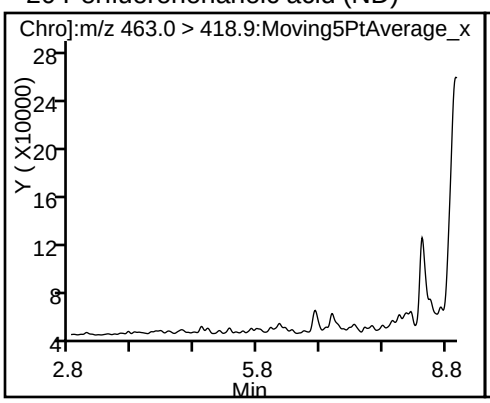
19 Perfluorooctane sulfonic acid



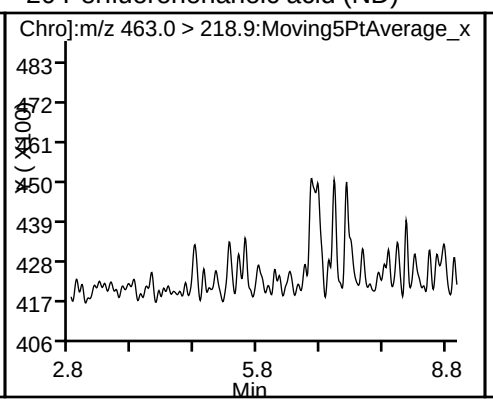
* 21 13C5 PFNA (IS)



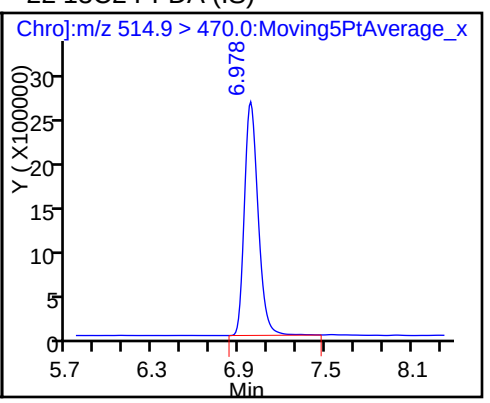
20 Perfluorononanoic acid (ND)



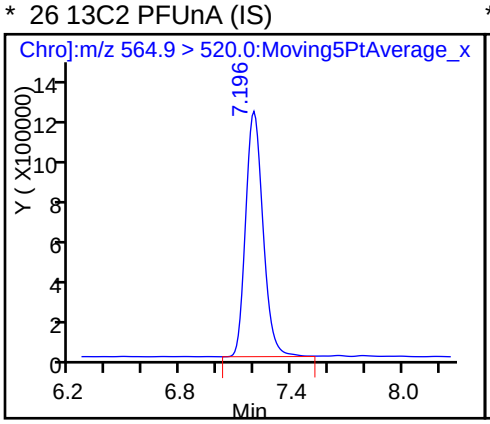
20 Perfluorononanoic acid (ND)



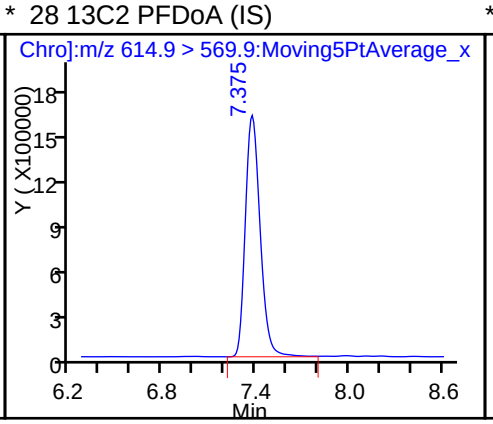
* 22 13C2 PFDA (IS)



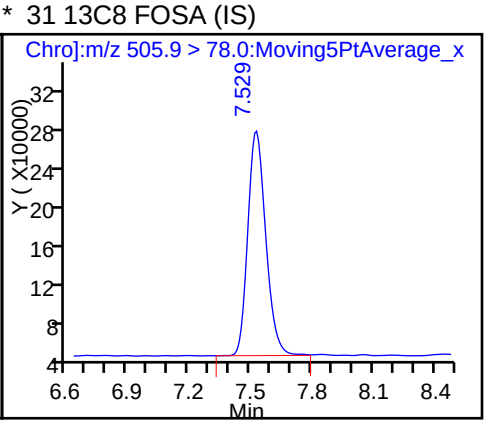
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: SWF-OF-008 | Lab Sample ID: 280-85298-4

Matrix: Water | Lab File ID: PC516G18051.d

Analysis Method: DV-LC-0012 | Date Collected: 07/05/2016 12:05

Extraction Method: 3535 | Date Extracted: 07/16/2016 07:25

Sample wt/vol: 253(mL) | Date Analyzed: 07/18/2016 22:07

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 334166 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.015	J *	0.020	0.0081
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.021	J	0.030	0.013
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.12		0.030	0.0069
375-95-1	Perfluorononanoic acid (PFNA)	0.017	U	0.040	0.017
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.28		0.030	0.013
335-67-1	Perfluorooctanoic acid (PFOA)	0.026		0.020	0.0097

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	102		60-155
STL01054	13C8 PFOS	102		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18051.d
Lims ID: 280-85298-A-4-A Lab Sample ID: 280-85298-4
Client ID: SWF-OF-008
Sample Type: Client
Inject. Date: 18-Jul-2016 22:07:57 ALS Bottle#: 0 Worklist Smp#: 46
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85298-A-4-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 19-Jul-2016 15:53:35 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK035

First Level Reviewer: fiedlerh Date: 19-Jul-2016 14:23:39

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.115	4.276	-0.161		34860677	10.0			
4 Perfluorobutane Sulfonate									R
298.9 > 79.9	5.327	5.431	-0.104	0.854	1102870	0.7378			R
298.9 > 98.9	5.345	5.431	-0.086	0.857	307570		3.59(1.80-3.35)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.790	5.894	-0.104		22205171	10.0			
8 Perfluoroheptanoic acid									M
363.0 > 318.9	6.216	6.320	-0.104	0.947	3241884	1.06			M
363.0 > 168.9	6.225	6.320	-0.095	0.948	716441		4.52(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.234	6.329	-0.095		2734442	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.225	6.320	-0.095	0.999	6799957	6.05			R
398.9 > 98.9	6.225	6.320	-0.095	0.999	2008517		3.39(1.30-2.41)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.565	6.660	-0.095	1.000	28123138	10.2			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.565	6.669	-0.104		34094340	10.0			
16 Perfluorooctanoic acid									R
413.0 > 368.9	6.565	6.660	-0.095	1.000	4902119	1.32			R
413.0 > 169.0	6.556	6.660	-0.104	0.999	1722329		2.85(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.837	6.932	-0.095	1.000	5520449	9.72			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.837	6.932	-0.095		8878148	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.819	6.932	-0.113	0.997	15159761	14.0			R
498.9 > 98.9	6.828	6.932	-0.104	0.999	4337175		3.50(1.31-2.43)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.848	6.952	-0.104		26944060	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9		6.952				ND			
463.0 > 218.9		6.952							
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.092	7.196	-0.104		27725556	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.300	7.395	-0.095		16304157	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.469	7.573	-0.104		29946242	10.0			
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.614	7.728	-0.114		1975177	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

R - Failed Signal Ratio Test

s - Failed ISTD Recovery Test

Review Flags

M - Manually Integrated

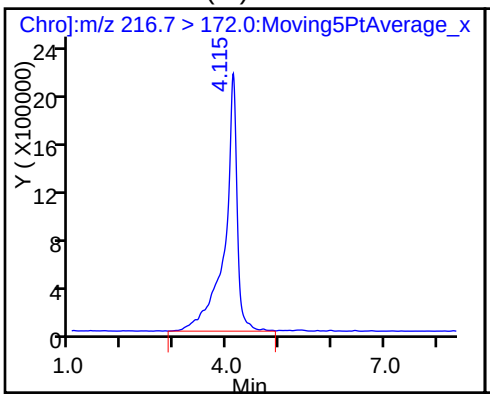
Report Date: 19-Jul-2016 15:53:47 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

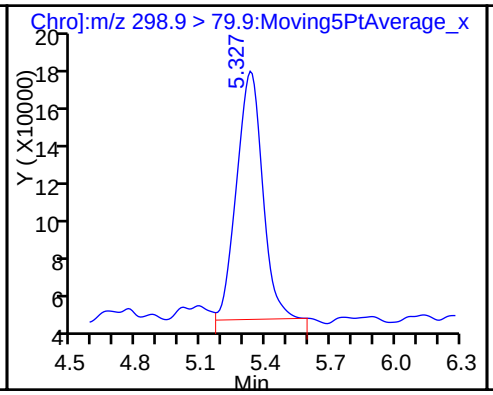
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18051.d

Injection Date:	18-Jul-2016 22:07:57	Instrument ID:	LC_LCMS5		
Lims ID:	280-85298-A-4-A	Lab Sample ID:	280-85298-4		
Client ID:	SWF-OF-008				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	46
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

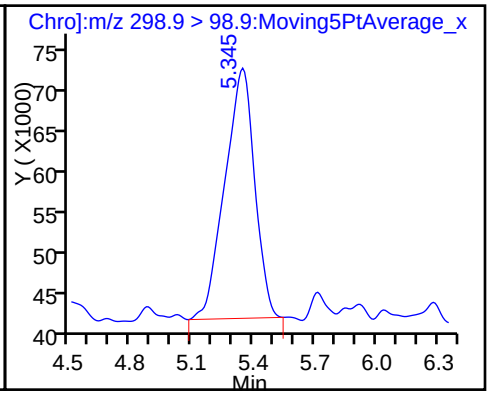
* 1 13C4 PFBA (IS)



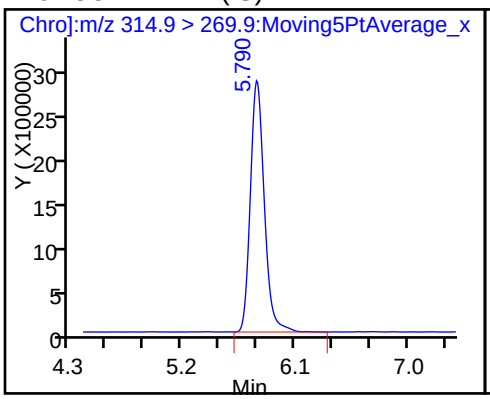
4 Perfluorobutane Sulfonate



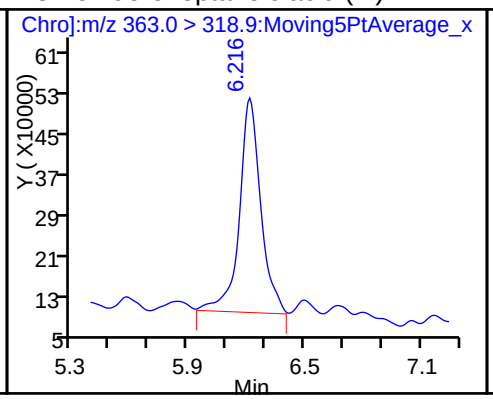
4 Perfluorobutane Sulfonate



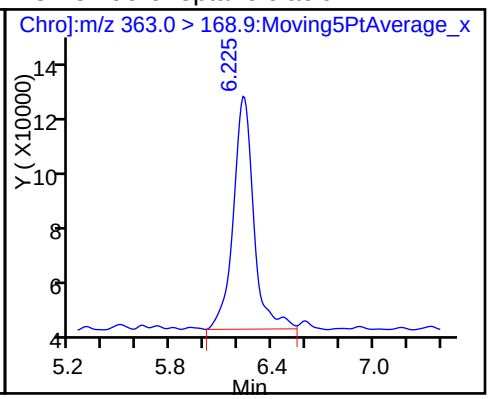
* 6 13C2 PFHxA (IS)



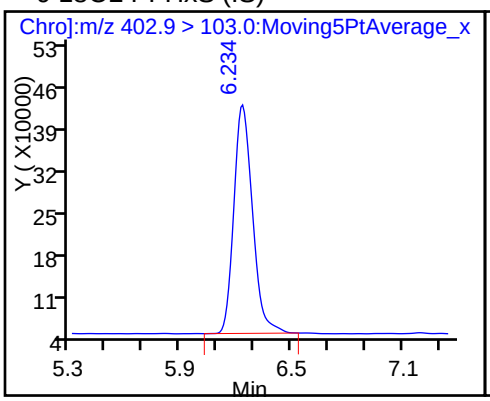
8 Perfluoroheptanoic acid (M)



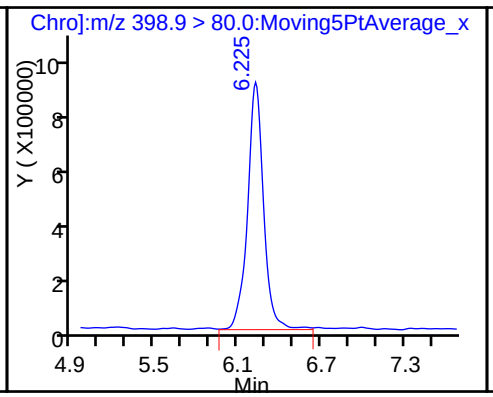
8 Perfluoroheptanoic acid



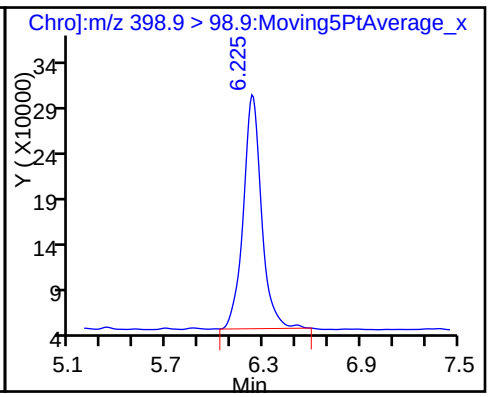
* 9 18O2 PFHxS (IS)



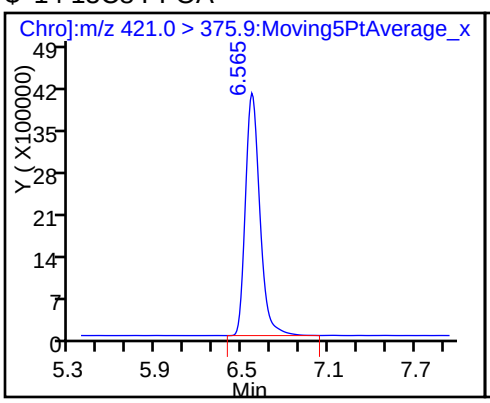
10 Perfluorohexane Sulfonate



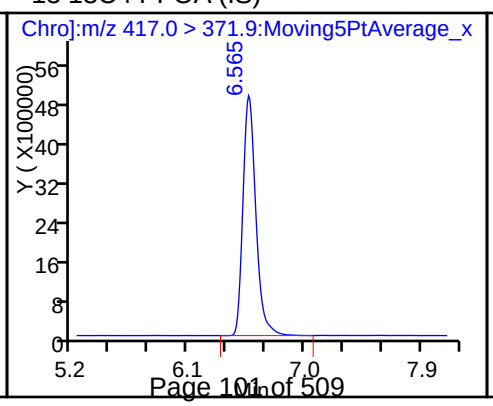
10 Perfluorohexane Sulfonate



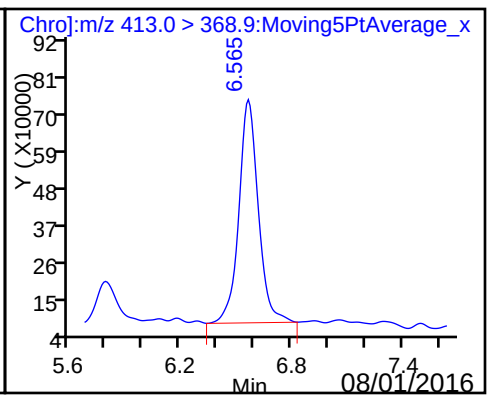
$ 14 13C8 PFOA



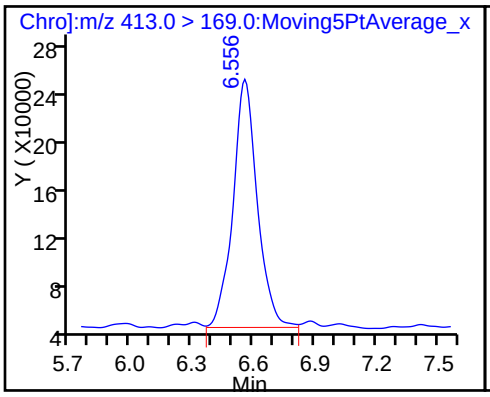
* 15 13C4 PFOA (IS)



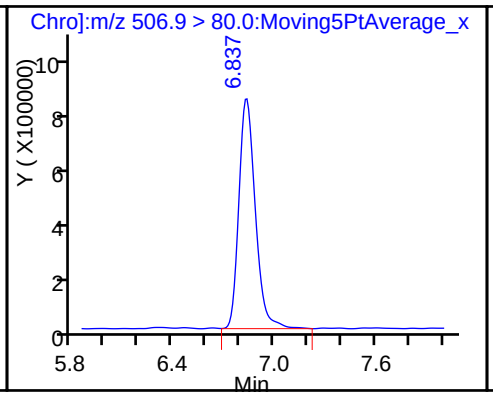
16 Perfluorooctanoic acid



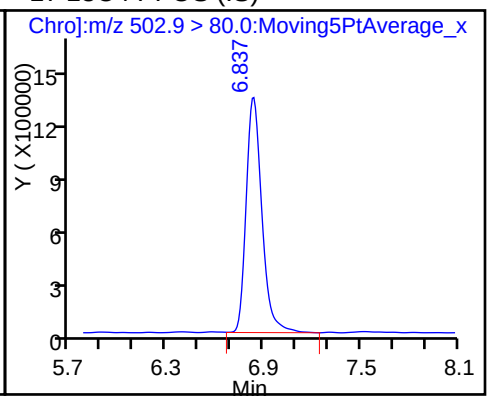
16 Perfluorooctanoic acid



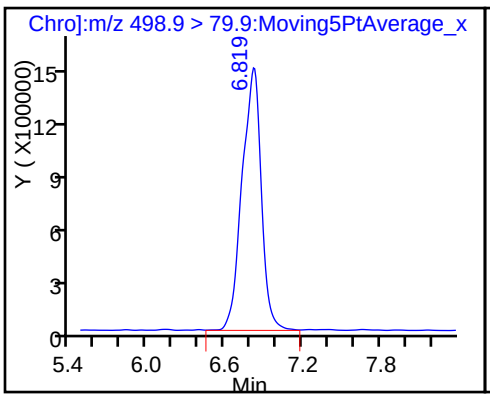
$ 18 13C8 PFOS



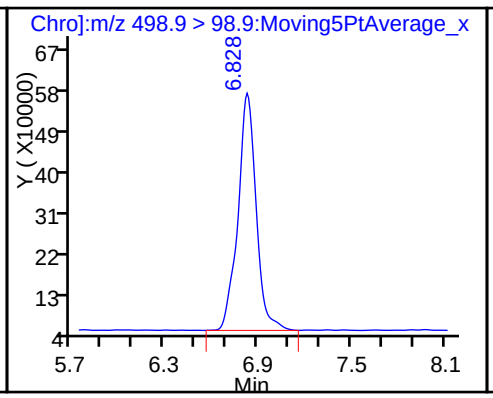
* 17 13C4 PFOS (IS)



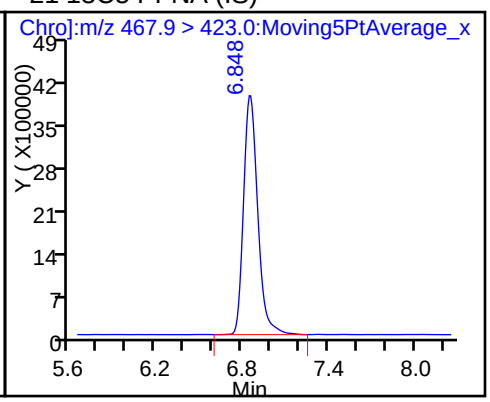
19 Perfluorooctane sulfonic acid



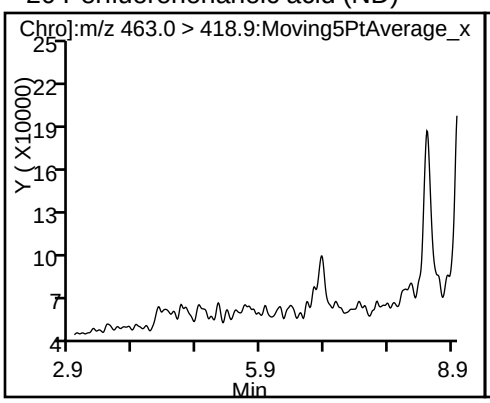
19 Perfluorooctane sulfonic acid



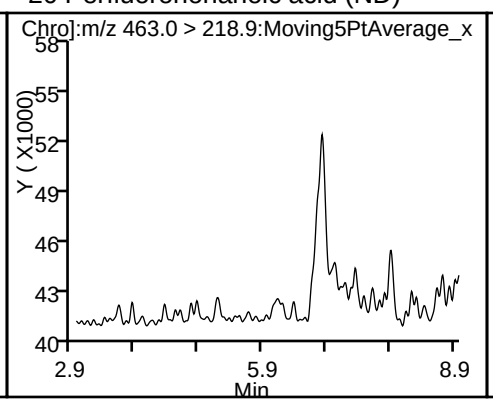
* 21 13C5 PFNA (IS)



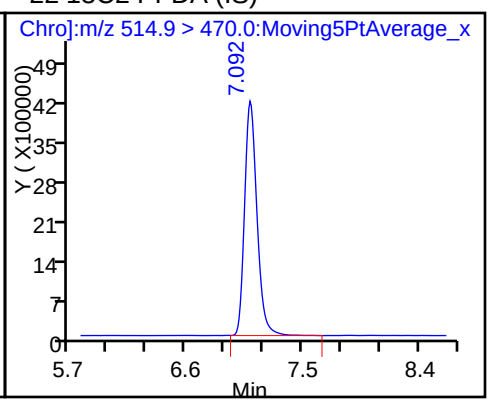
20 Perfluorononanoic acid (ND)



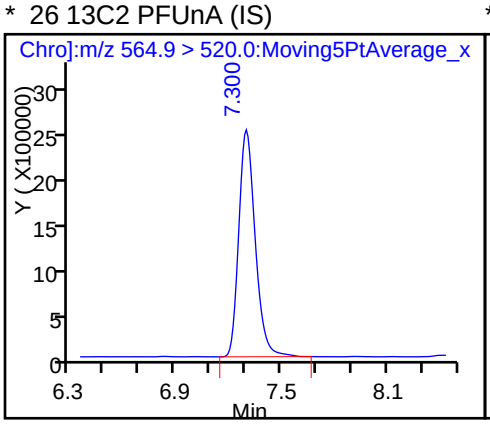
20 Perfluorononanoic acid (ND)



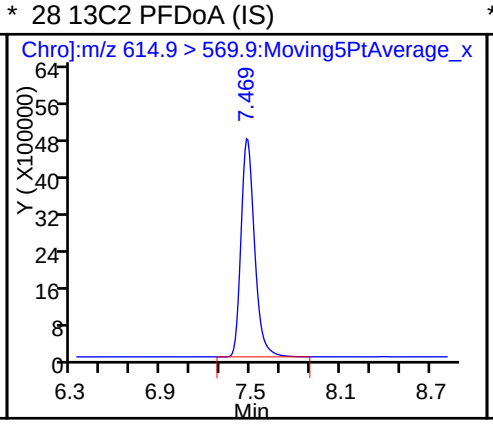
* 22 13C2 PFDA (IS)



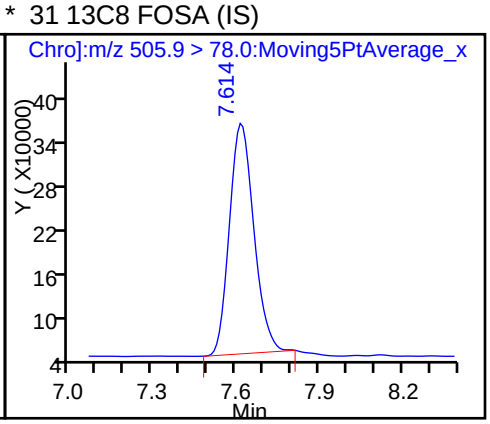
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



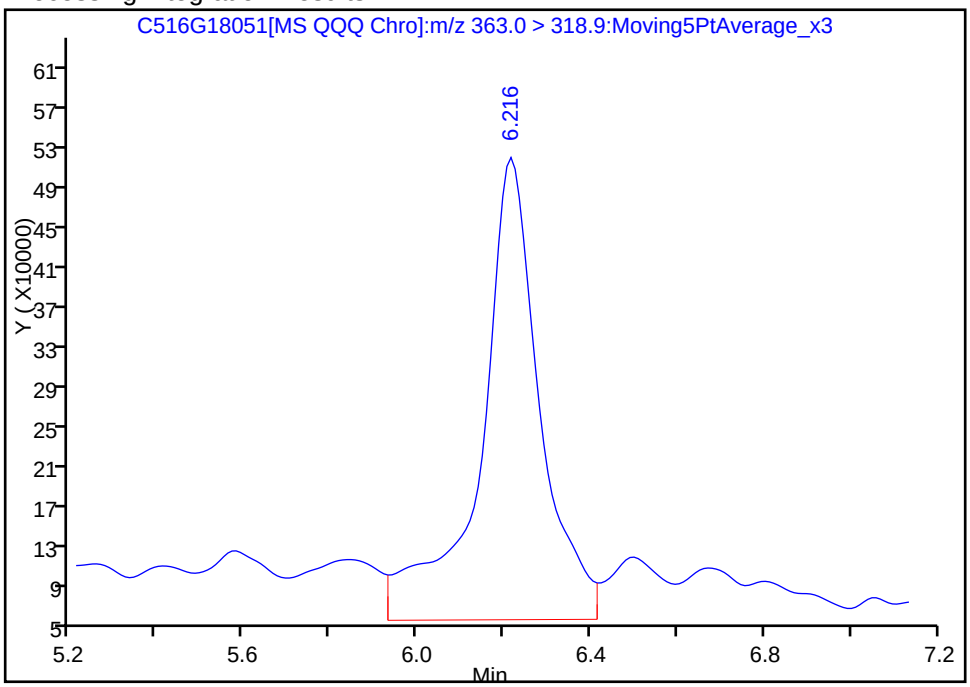
TestAmerica Denver

Data File:	\\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18051.d				
Injection Date:	18-Jul-2016 22:07:57	Instrument ID:	LC_LCMS5		
Lims ID:	280-85298-A-4-A	Lab Sample ID:	280-85298-4		
Client ID:	SWF-OF-008				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	46
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		
Column:		Detector	MS QQQ		

8 Perfluoroheptanoic acid, CAS: 375-85-9

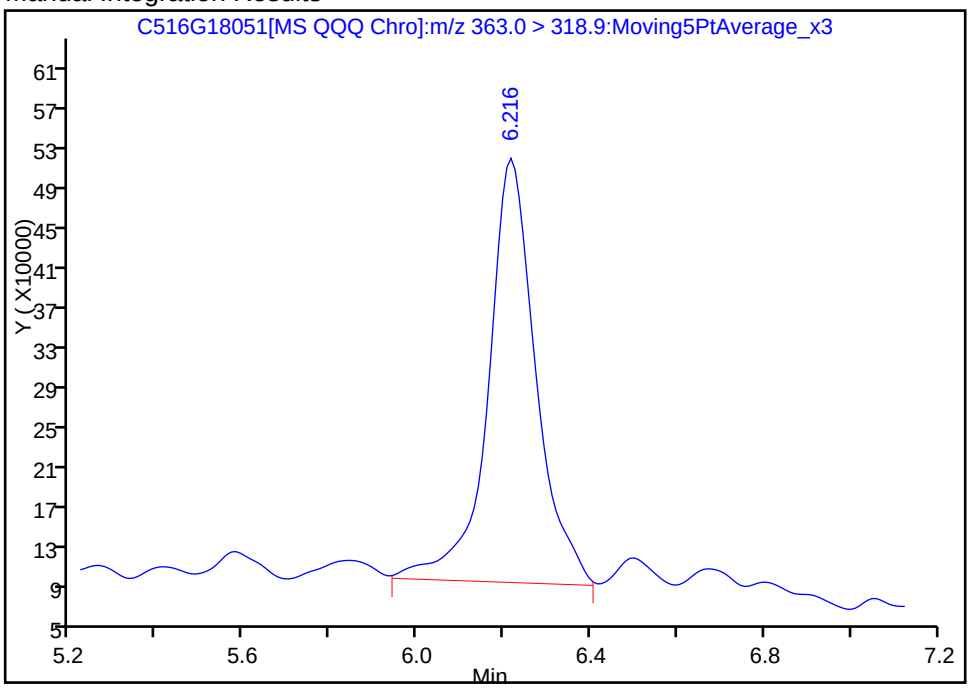
Processing Integration Results

RT: 6.22
Area: 4361998
Amount: 1.442221
Amount Units: ug/L



Manual Integration Results

RT: 6.22
Area: 3241884
Amount: 1.063288
Amount Units: ug/L



Reviewer: fiedlerh, 19-Jul-2016 14:23:39
Audit Action: Manually Integrated
Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: SWF-OF-008 RE | Lab Sample ID: 280-85298-4 RE

Matrix: Water | Lab File ID: PC516G28057.d

Analysis Method: DV-LC-0012 | Date Collected: 07/05/2016 12:05

Extraction Method: 3535 | Date Extracted: 07/25/2016 10:50

Sample wt/vol: 276.1(mL) | Date Analyzed: 07/28/2016 19:47

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 335652 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	*Perfluorobutane Sulfonate (PFBS)*	*0.023*	*H*	*0.018*	*0.0075*
375-85-9	*Perfluoroheptanoic acid (PFHpA)*	*0.022*	*J H*	*0.027*	*0.012*
108427-53-8	*Perfluorohexane Sulfonate (PFHxS)*	*0.16*	*H*	*0.027*	*0.0063*
375-95-1	*Perfluorononanoic acid (PFNA)*	*0.016*	*U H*	*0.036*	*0.016*
1763-23-1	*Perfluorooctanesulfonic acid (PFOS)*	*0.34*	*H*	*0.027*	*0.012*
335-67-1	*Perfluorooctanoic acid (PFOA)*	*0.032*	*H*	*0.018*	*0.0089*

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	103		60-155
STL01054	13C8 PFOS	101		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28057.d
Lims ID: 280-85298-B-4-A Lab Sample ID: 280-85298-4
Client ID: SWF-OF-008
Sample Type: Client
Inject. Date: 28-Jul-2016 19:47:21 ALS Bottle#: 0 Worklist Smp#: 13
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85298-B-4-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 29-Jul-2016 10:36:50 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK010

First Level Reviewer: meyera Date: 29-Jul-2016 09:44:27

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	3.963	4.067	-0.104		20877059	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.213	5.260	-0.047	0.854	1358488	1.24			
298.9 > 98.9	5.203	5.260	-0.057	0.853	436299		3.11(1.80-3.35)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.667	5.724	-0.057		16259169	10.0			
8 Perfluoroheptanoic acid									M
363.0 > 318.9	6.093	6.159	-0.066	0.946	2865696	1.23			M
363.0 > 168.9	6.093	6.159	-0.066	0.946	654820		4.38(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.102	6.168	-0.066		1988150	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.102	6.168	-0.066	1.000	7027085	8.63			R
398.9 > 98.9	6.102	6.168	-0.066	1.000	2353789		2.99(1.30-2.41)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.442	6.508	-0.066	1.000	21355615	10.1			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.442	6.508	-0.066		26235060	10.0			
16 Perfluorooctanoic acid									R
413.0 > 368.9	6.442	6.508	-0.066	1.000	4917957	1.74			R
413.0 > 169.0	6.442	6.508	-0.066	1.000	1850795		2.66(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.714	6.780	-0.066	1.000	4333017	9.41			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.714	6.781	-0.067		7203268	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.705	6.781	-0.076	0.999	16420616	18.7			R
498.9 > 98.9	6.705	6.781	-0.076	0.999	4707620		3.49(1.31-2.43)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.734	6.801	-0.066		20007643	10.0			
20 Perfluorononanoic acid									R
463.0 > 418.9	6.734	6.801	-0.067	1.000	366059	0.1201			R
463.0 > 218.9	6.763	6.801	-0.038	1.004	73152		5.00(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	6.978	7.045	-0.067		19214082	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.196	7.262	-0.066		9380796	10.0			
* 28 13C2 PFDoA (IS)									s
614.9 > 569.9	7.365	7.441	-0.076		15381531	10.0			
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.519	7.557	-0.038		2018300	10.0			

QC Flag Legend

Processing Flags
- R - Failed Signal Ratio Test
- s - Failed ISTD Recovery Test

Review Flags
- M - Manually Integrated

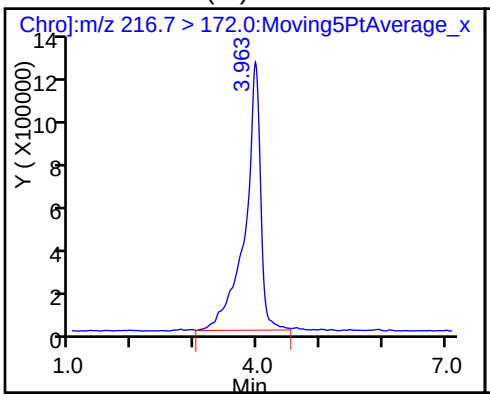
Report Date: 29-Jul-2016 10:37:24 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

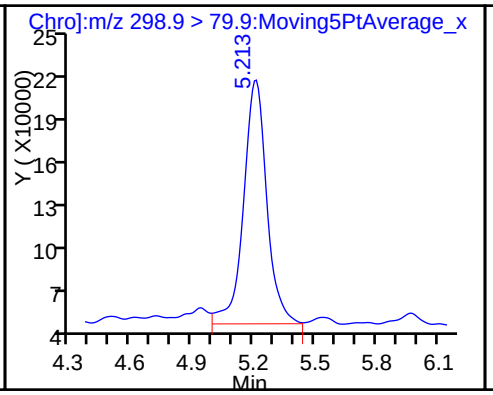
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28057.d

Injection Date:	28-Jul-2016 19:47:21	Instrument ID:	LC_LCMS5		
Lims ID:	280-85298-B-4-A	Lab Sample ID:	280-85298-4		
Client ID:	SWF-OF-008				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	13
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

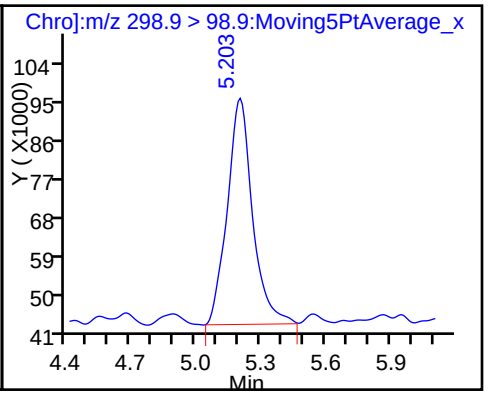
* 1 13C4 PFBA (IS)



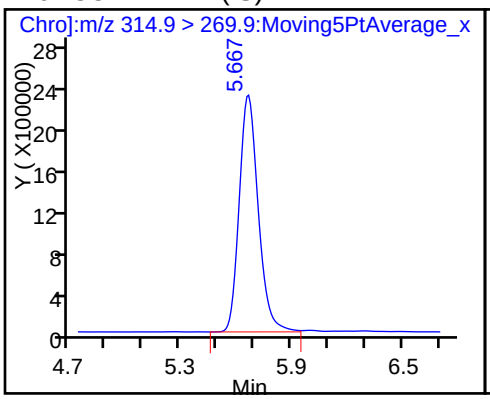
4 Perfluorobutane Sulfonate



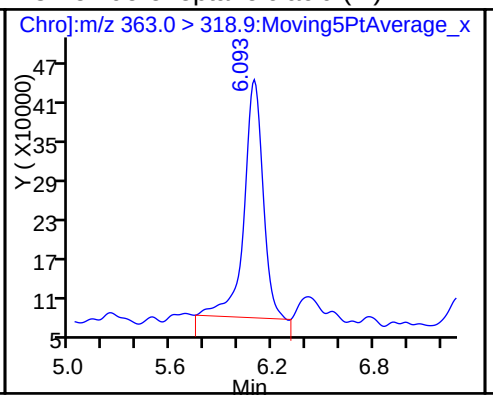
4 Perfluorobutane Sulfonate



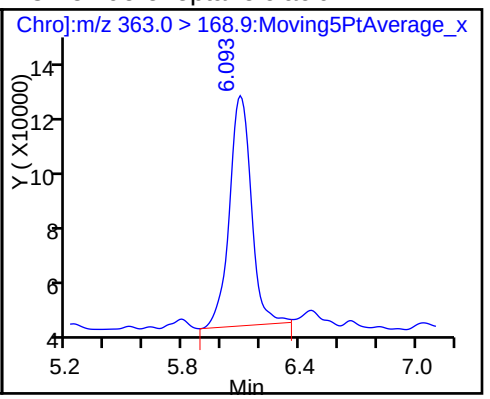
* 6 13C2 PFHxA (IS)



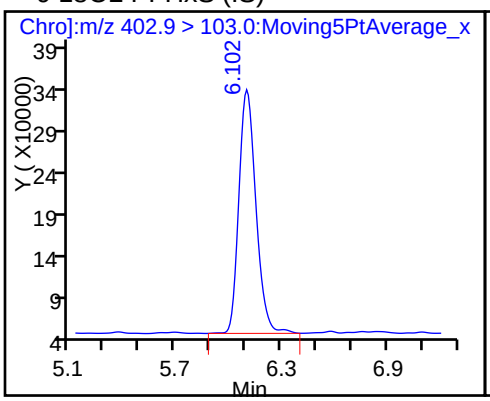
8 Perfluoroheptanoic acid (M)



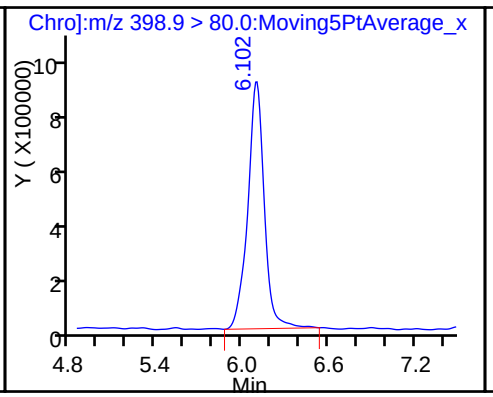
8 Perfluoroheptanoic acid



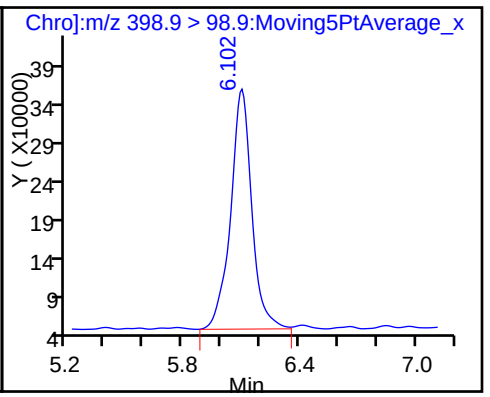
* 9 18O2 PFHxS (IS)



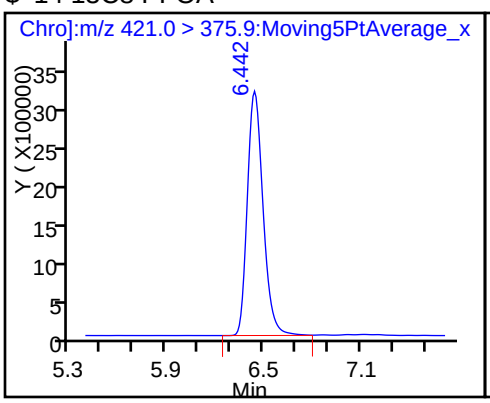
10 Perfluorohexane Sulfonate



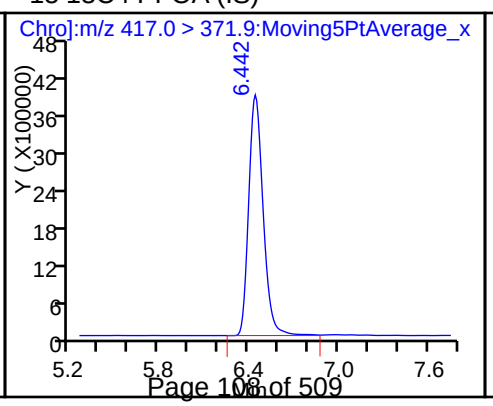
10 Perfluorohexane Sulfonate



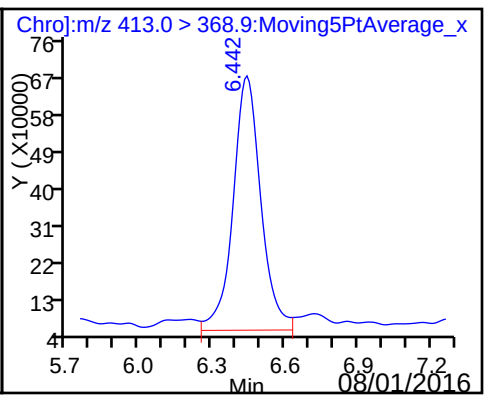
$ 14 13C8 PFOA



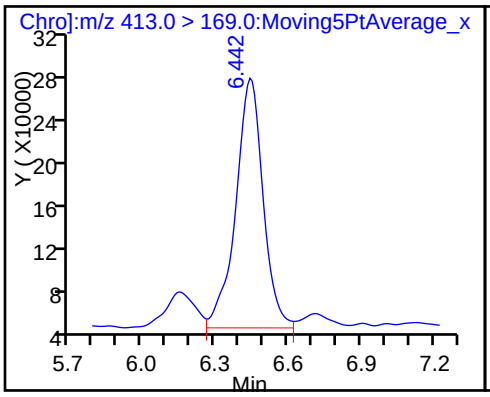
* 15 13C4 PFOA (IS)



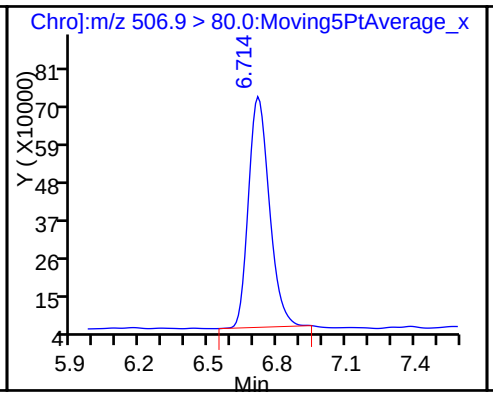
16 Perfluorooctanoic acid



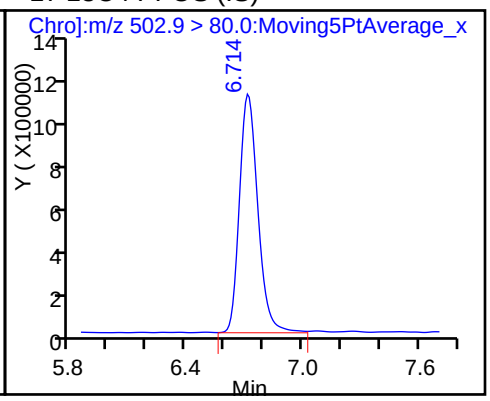
16 Perfluorooctanoic acid



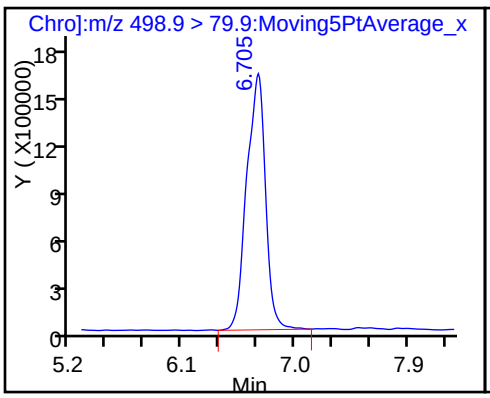
$ 18 13C8 PFOS



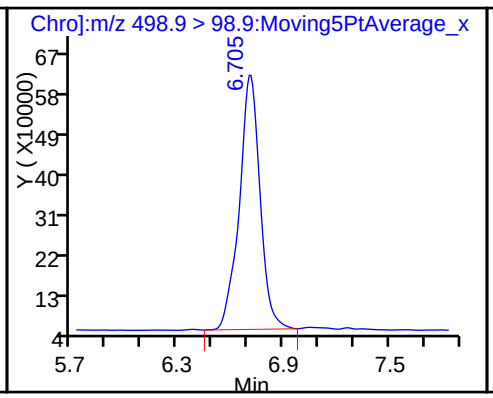
* 17 13C4 PFOS (IS)



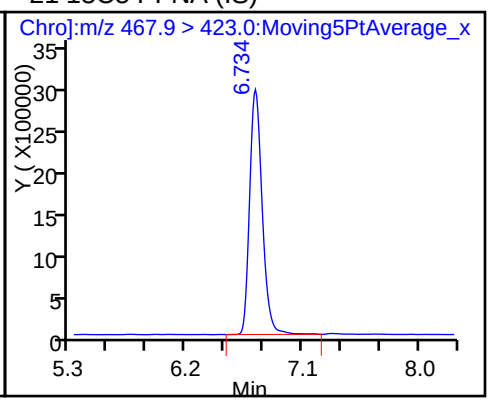
19 Perfluorooctane sulfonic acid



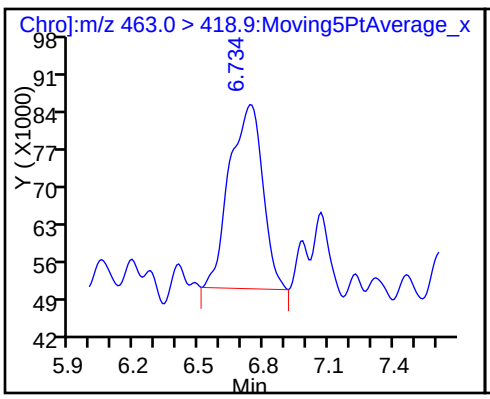
19 Perfluorooctane sulfonic acid



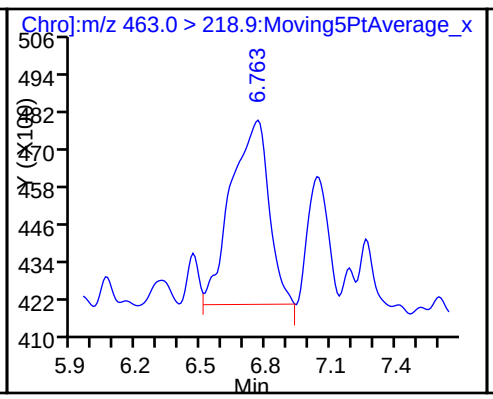
* 21 13C5 PFNA (IS)



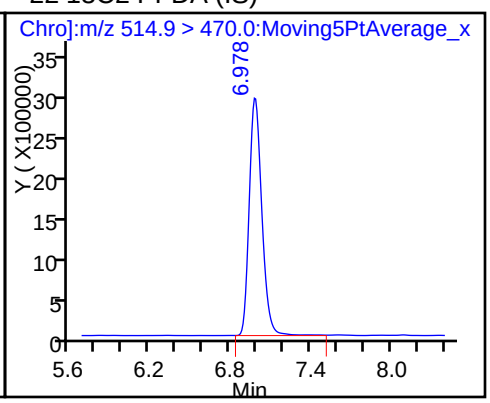
20 Perfluorononanoic acid



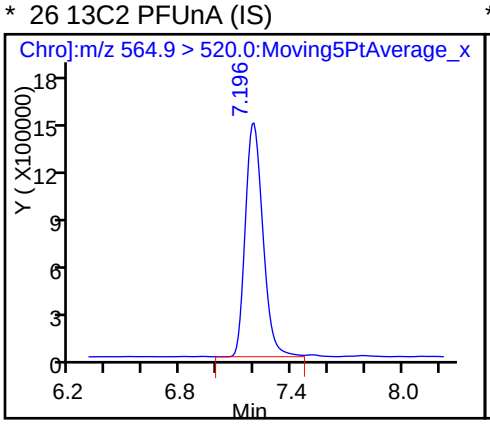
20 Perfluorononanoic acid



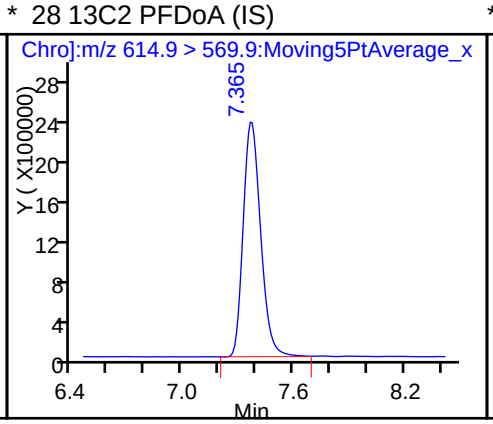
* 22 13C2 PFDA (IS)



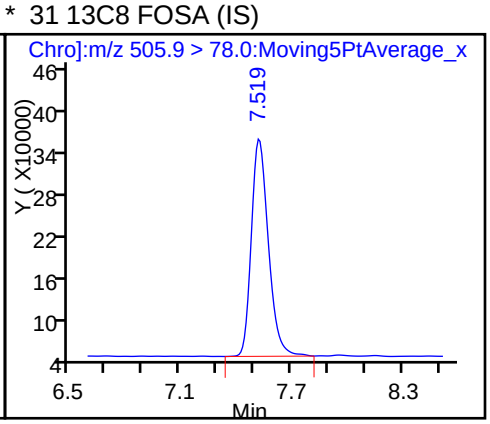
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



Manual Integration/User Assign Peak Report

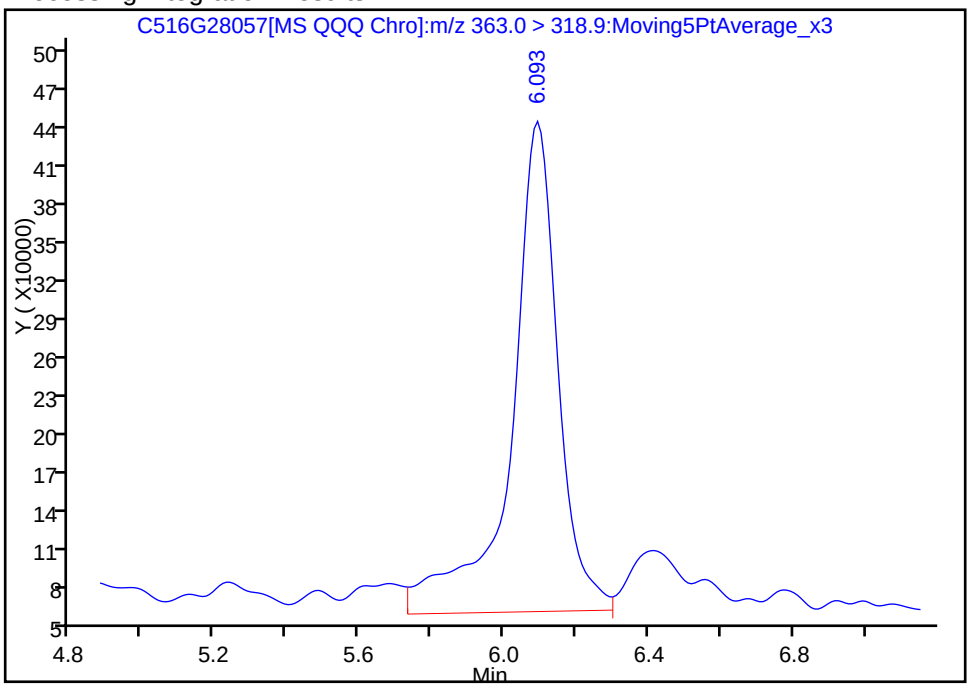
TestAmerica Denver

Data File:	\\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28057.d				
Injection Date:	28-Jul-2016 19:47:21	Instrument ID:	LC_LCMS5		
Lims ID:	280-85298-B-4-A	Lab Sample ID:	280-85298-4		
Client ID:	SWF-OF-008				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	13
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		
Column:		Detector	MS QQQ		

8 Perfluoroheptanoic acid, CAS: 375-85-9

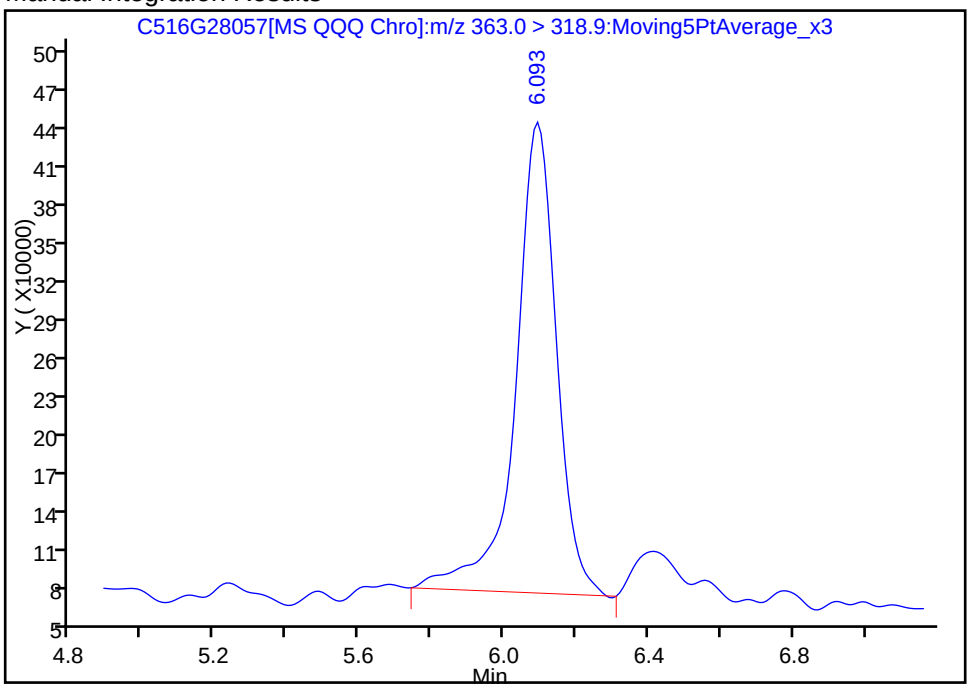
Processing Integration Results

RT: 6.09
Area: 3419633
Amount: 1.469982
Amount Units: ug/L



Manual Integration Results

RT: 6.09
Area: 2865696
Amount: 1.226447
Amount Units: ug/L



Reviewer: meyera, 29-Jul-2016 09:44:27
Audit Action: Manually Integrated
Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: SWF-OF-010 | Lab Sample ID: 280-85298-5

Matrix: Water | Lab File ID: PC516G18052.d

Analysis Method: DV-LC-0012 | Date Collected: 07/05/2016 12:35

Extraction Method: 3535 | Date Extracted: 07/16/2016 07:25

Sample wt/vol: 250.1(mL) | Date Analyzed: 07/18/2016 22:20

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 334166 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.0082	U *	0.020	0.0082
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.035		0.030	0.013
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.080		0.030	0.0070
375-95-1	Perfluorononanoic acid (PFNA)	0.017	U	0.040	0.017
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.14		0.030	0.013
335-67-1	Perfluorooctanoic acid (PFOA)	0.037		0.020	0.0098

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	103		60-155
STL01054	13C8 PFOS	99		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18052.d
Lims ID: 280-85298-B-5-A Lab Sample ID: 280-85298-5
Client ID: SWF-OF-010
Sample Type: Client
Inject. Date: 18-Jul-2016 22:20:15 ALS Bottle#: 0 Worklist Smp#: 47
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85298-B-5-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 19-Jul-2016 15:53:35 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK035

First Level Reviewer: fiedlerh Date: 19-Jul-2016 14:24:21

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.172	4.276	-0.104		31695726	10.0			
4 Perfluorobutane Sulfonate									M
298.9 > 79.9	5.364	5.431	-0.067	0.855	451913	0.3450			M
298.9 > 98.9	5.355	5.431	-0.076	0.854	207276		2.18(1.80-3.35)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.837	5.894	-0.057		19253489	10.0			
8 Perfluoroheptanoic acid									RM
363.0 > 318.9	6.235	6.320	-0.085	0.943	4654584	1.74			RM
363.0 > 168.9	6.263	6.320	-0.057	0.947	343330		13.56(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.272	6.329	-0.057		2427311	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.263	6.320	-0.057	0.999	4040270	4.02			R
398.9 > 98.9	6.272	6.320	-0.048	1.000	1148084		3.52(1.30-2.41)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.612	6.660	-0.048	1.000	25298339	10.3			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.612	6.669	-0.057		30347288	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.603	6.660	-0.057	0.999	6041109	1.85			
413.0 > 169.0	6.603	6.660	-0.057	0.999	1920901		3.14(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.875	6.932	-0.057	1.000	5325533	9.49			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.875	6.932	-0.057		8778359	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.866	6.932	-0.066	0.999	7617281	7.06			R
498.9 > 98.9	6.876	6.932	-0.056	1.000	2536266		3.00(1.31-2.43)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.895	6.952	-0.057		24653138	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9		6.952				ND			
463.0 > 218.9		6.952							
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.140	7.196	-0.056		25126011	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.347	7.395	-0.048		15695520	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.526	7.573	-0.047		28926590	10.0			
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.671	7.728	-0.057		1758500	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

R - Failed Signal Ratio Test

s - Failed ISTD Recovery Test

Review Flags

M - Manually Integrated

Report Date: 19-Jul-2016 15:53:49 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18052.d

Injection Date: 18-Jul-2016 22:20:15 Instrument ID: LC_LCMS5

Lims ID: 280-85298-B-5-A Lab Sample ID: 280-85298-5

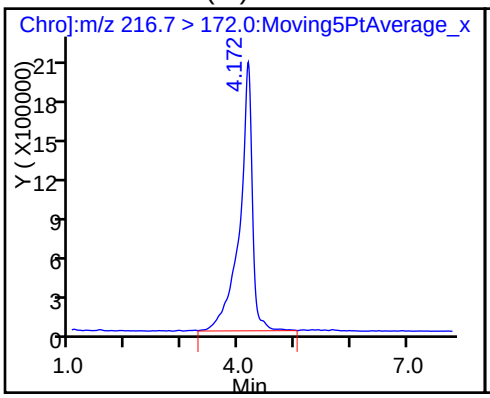
Client ID: SWF-OF-010

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 47

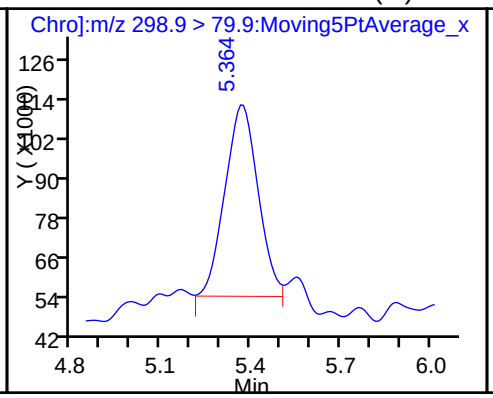
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

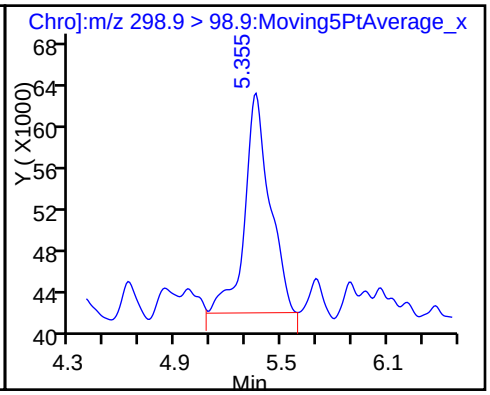
* 1 13C4 PFBA (IS)



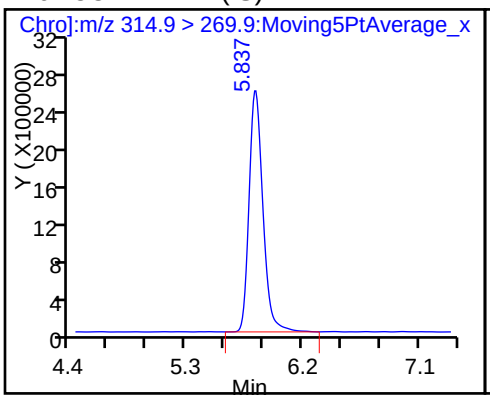
4 Perfluorobutane Sulfonate (M)



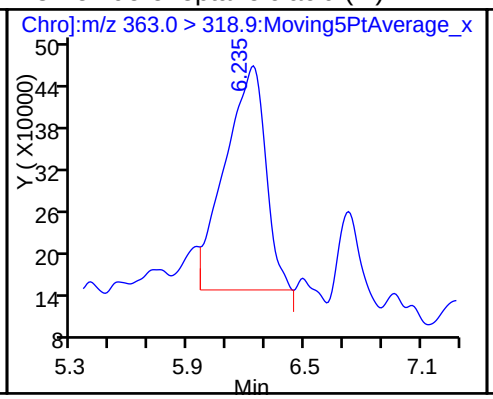
4 Perfluorobutane Sulfonate



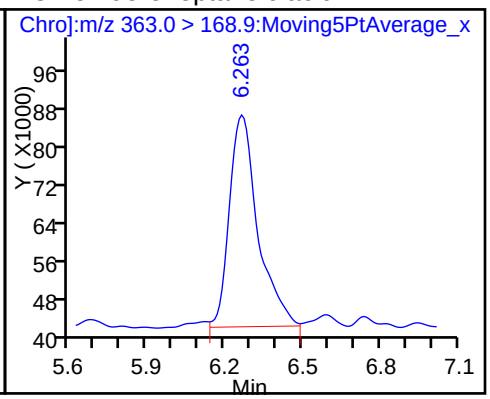
* 6 13C2 PFHxA (IS)



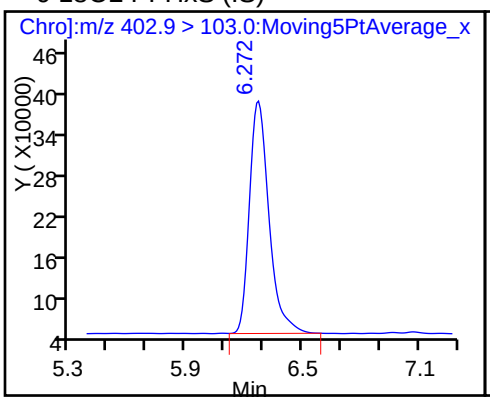
8 Perfluoroheptanoic acid (M)



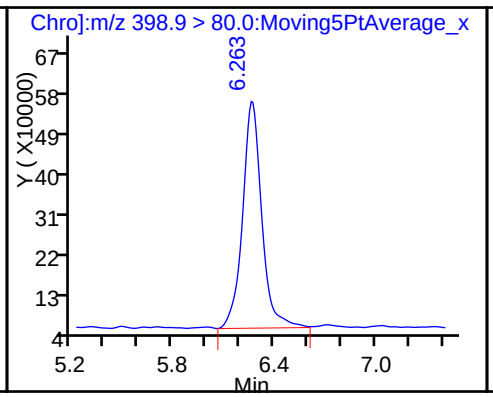
8 Perfluoroheptanoic acid



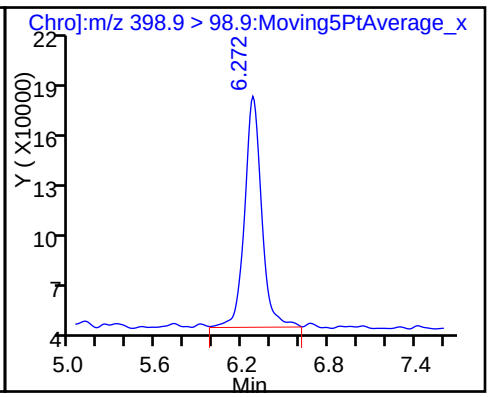
* 9 18O2 PFHxS (IS)



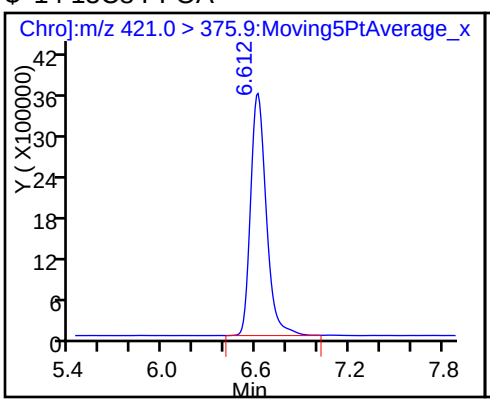
10 Perfluorohexane Sulfonate



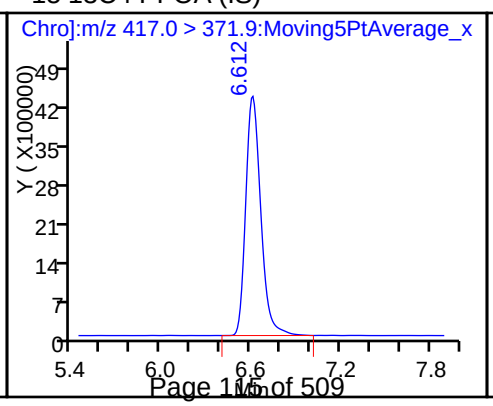
10 Perfluorohexane Sulfonate



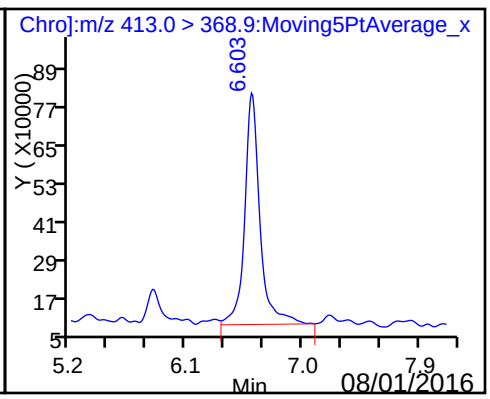
$ 14 13C8 PFOA



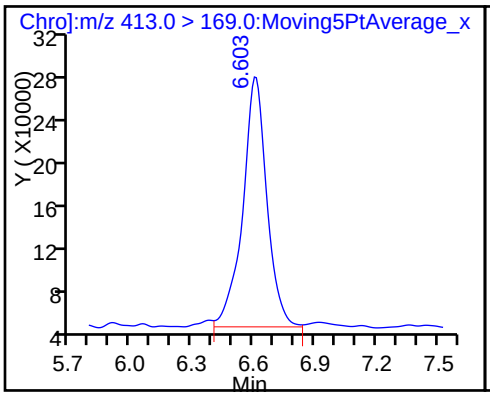
* 15 13C4 PFOA (IS)



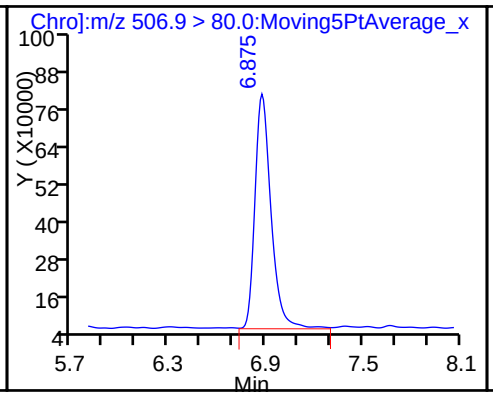
16 Perfluorooctanoic acid



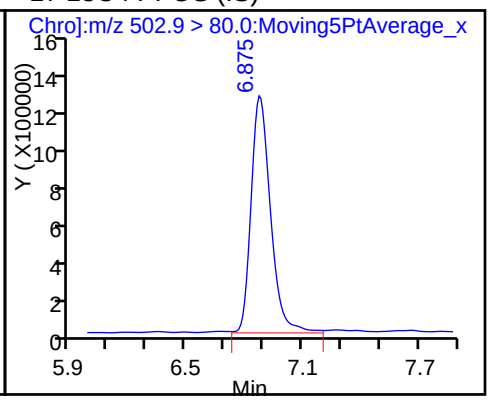
16 Perfluorooctanoic acid



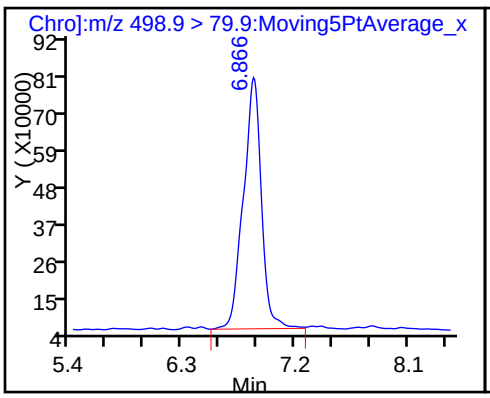
$ 18 13C8 PFOS



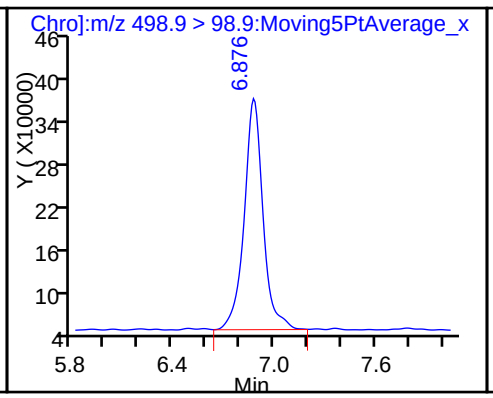
* 17 13C4 PFOS (IS)



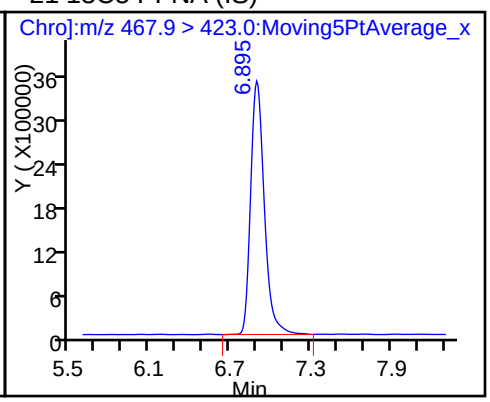
19 Perfluorooctane sulfonic acid



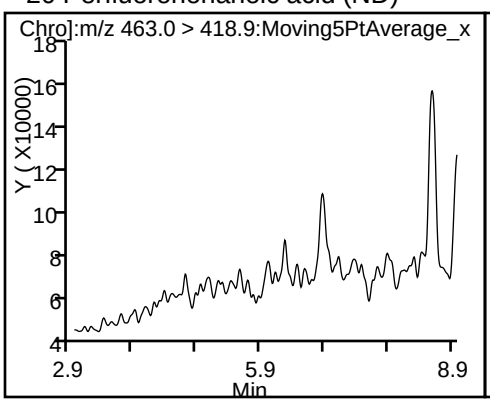
19 Perfluorooctane sulfonic acid



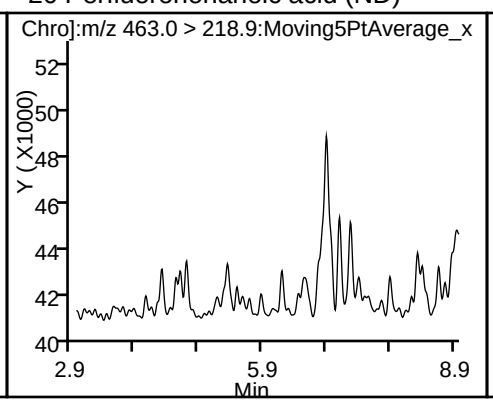
* 21 13C5 PFNA (IS)



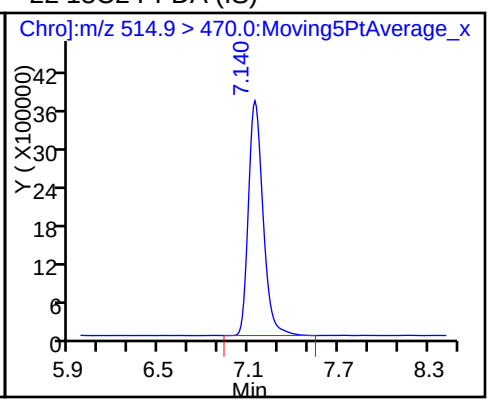
20 Perfluorononanoic acid (ND)



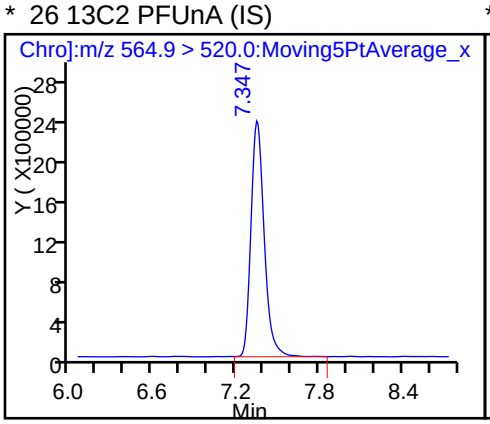
20 Perfluorononanoic acid (ND)



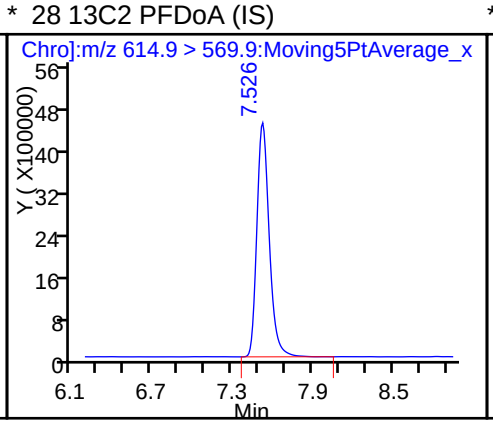
* 22 13C2 PFDA (IS)



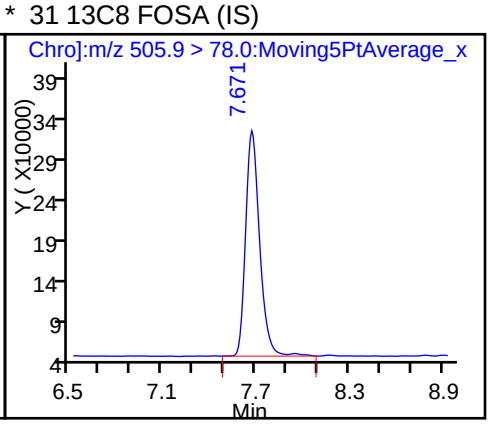
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



Manual Integration/User Assign Peak Report

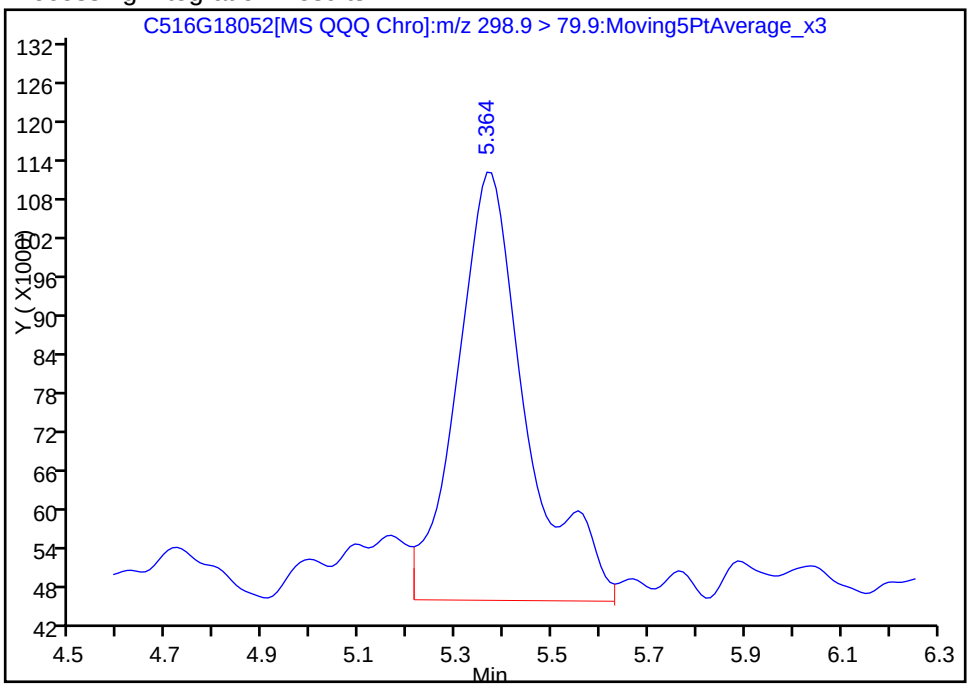
TestAmerica Denver

Data File:	\\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18052.d				
Injection Date:	18-Jul-2016 22:20:15	Instrument ID:	LC_LCMS5		
Lims ID:	280-85298-B-5-A	Lab Sample ID:	280-85298-5		
Client ID:	SWF-OF-010				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	47
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		
Column:		Detector	MS QQQ		

4 Perfluorobutane Sulfonate, CAS: 29420-43-3

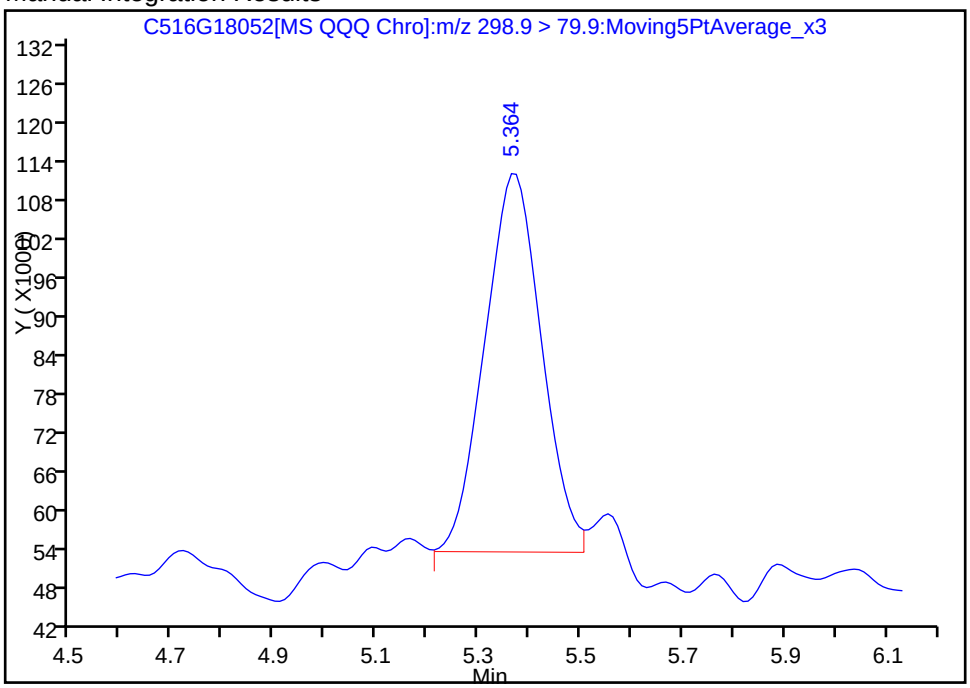
Processing Integration Results

RT: 5.36
Area: 664466
Amount: 0.503411
Amount Units: ug/L



Manual Integration Results

RT: 5.36
Area: 451913
Amount: 0.344986
Amount Units: ug/L



Reviewer: fiedlerh, 19-Jul-2016 14:25:46
Audit Action: Manually Integrated
Audit Reason: Baseline

Manual Integration/User Assign Peak Report

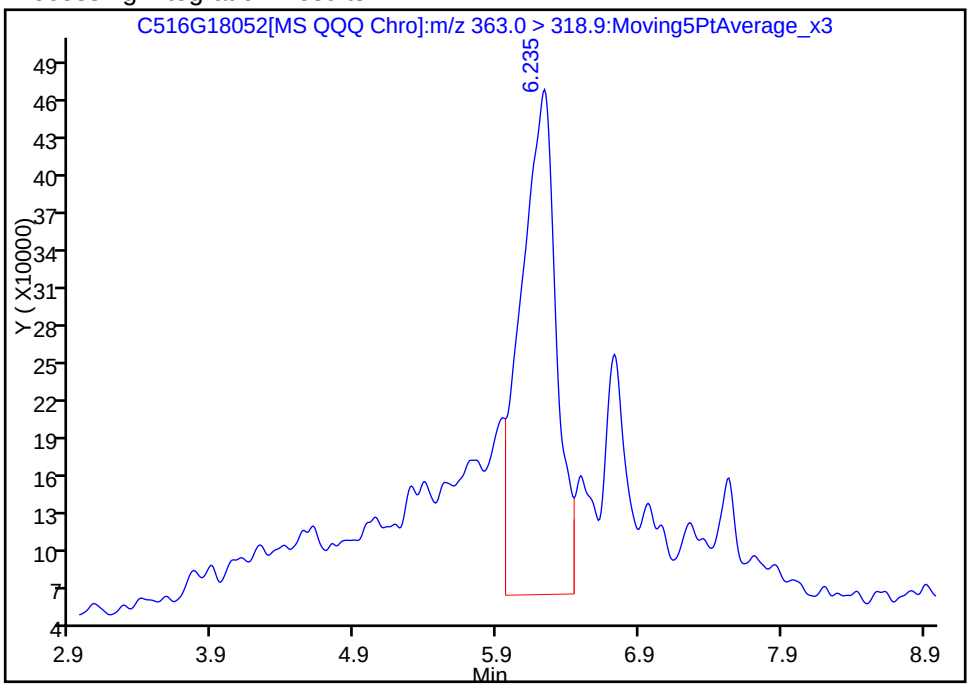
TestAmerica Denver

Data File:	\\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18052.d				
Injection Date:	18-Jul-2016 22:20:15	Instrument ID:	LC_LCMS5		
Lims ID:	280-85298-B-5-A	Lab Sample ID:	280-85298-5		
Client ID:	SWF-OF-010				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	47
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		
Column:		Detector	MS QQQ		

8 Perfluoroheptanoic acid, CAS: 375-85-9

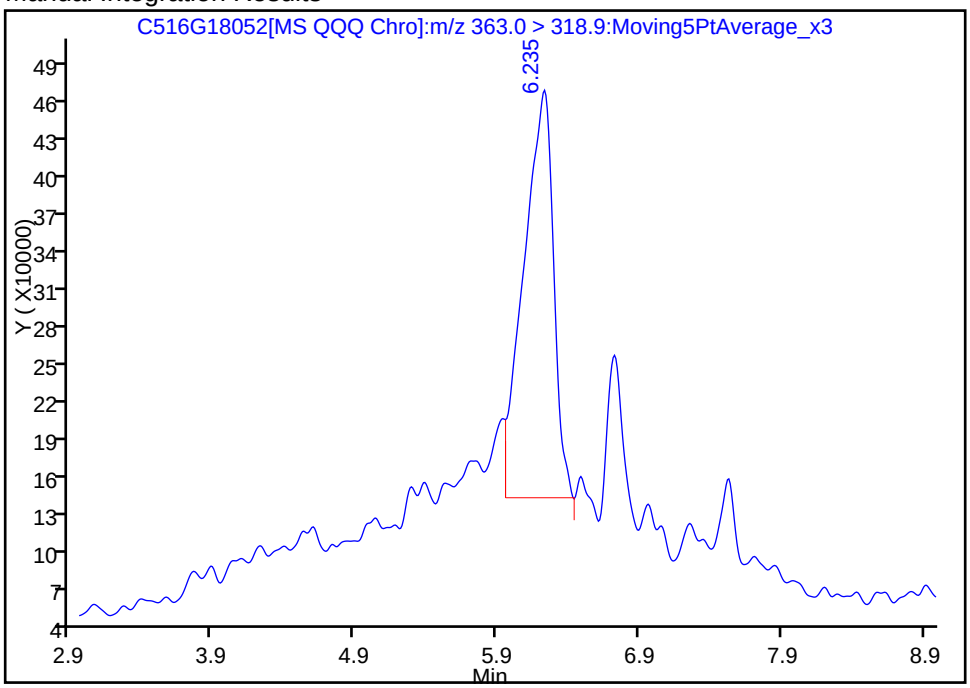
Processing Integration Results

RT: 6.23
Area: 6881418
Amount: 2.581975
Amount Units: ug/L



Manual Integration Results

RT: 6.23
Area: 4654584
Amount: 1.735626
Amount Units: ug/L



Reviewer: fiedlerh, 19-Jul-2016 14:24:21
Audit Action: Manually Integrated
Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: SWF-OF-010 RE | Lab Sample ID: 280-85298-5 RE

Matrix: Water | Lab File ID: PC516G28059.d

Analysis Method: DV-LC-0012 | Date Collected: 07/05/2016 12:35

Extraction Method: 3535 | Date Extracted: 07/25/2016 10:50

Sample wt/vol: 273(mL) | Date Analyzed: 07/28/2016 20:11

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 335652 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	*Perfluorobutane Sulfonate (PFBS)*	*0.0088*	*J H*	*0.018*	*0.0075*
375-85-9	*Perfluoroheptanoic acid (PFHpA)*	*0.035*	*H*	*0.027*	*0.012*
108427-53-8	*Perfluorohexane Sulfonate (PFHxS)*	*0.11*	*H*	*0.027*	*0.0064*
375-95-1	*Perfluorononanoic acid (PFNA)*	*0.016*	*U H*	*0.037*	*0.016*
1763-23-1	*Perfluorooctanesulfonic acid (PFOS)*	*0.17*	*H*	*0.027*	*0.012*
335-67-1	*Perfluorooctanoic acid (PFOA)*	*0.044*	*H*	*0.018*	*0.0090*

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	107		60-155
STL01054	13C8 PFOS	98		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28059.d
Lims ID: 280-85298-A-5-A Lab Sample ID: 280-85298-5
Client ID: SWF-OF-010
Sample Type: Client
Inject. Date: 28-Jul-2016 20:11:56 ALS Bottle#: 0 Worklist Smp#: 15
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85298-A-5-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 29-Jul-2016 10:37:26 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK010

First Level Reviewer: meyera Date: 29-Jul-2016 09:45:28

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	3.944	4.029	-0.085		22663257	10.0			
4 Perfluorobutane Sulfonate									R
298.9 > 79.9	5.203	5.241	-0.038	0.851	496677	0.4793			R
298.9 > 98.9	5.194	5.241	-0.047	0.850	88920		5.59(1.80-3.35)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.667	5.695	-0.028		15162557	10.0			
8 Perfluoroheptanoic acid									RM
363.0 > 318.9	6.064	6.112	-0.048	0.940	4246023	1.91			RM
363.0 > 168.9	6.093	6.112	-0.019	0.944	322794		13.15(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.111	6.120	-0.009		1907386	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.111	6.130	-0.019	1.000	4607753	5.87			R
398.9 > 98.9	6.111	6.130	-0.019	1.000	1294079		3.56(1.30-2.41)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.451	6.470	-0.019	1.000	21405823	10.5			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.451	6.461	-0.010		25148882	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.452	6.461	-0.009	1.000	6430302	2.40			
413.0 > 169.0	6.452	6.461	-0.009	1.000	2034359		3.16(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.723	6.742	-0.019	1.000	4352860	9.06			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.724	6.743	-0.019		7510960	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.715	6.743	-0.028	0.999	8364203	9.08			R
498.9 > 98.9	6.724	6.743	-0.019	1.000	2734130		3.06(1.31-2.43)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.744	6.753	-0.009		21034509	10.0			
20 Perfluorononanoic acid									R
463.0 > 418.9	6.744	6.753	-0.009	1.000	554038	0.1921			R
463.0 > 218.9	6.772	6.753	0.019	1.004	22190		24.97(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	6.988	7.007	-0.019		19802104	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.205	7.215	-0.010		11811544	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.384	7.393	-0.009		20353967	10.0			
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.538	7.557	-0.019		2035100	10.0			

QC Flag Legend

Processing Flags
- R - Failed Signal Ratio Test
- s - Failed ISTD Recovery Test

Review Flags
- M - Manually Integrated

Report Date: 29-Jul-2016 10:37:30 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28059.d

Injection Date: 28-Jul-2016 20:11:56 Instrument ID: LC_LCMS5

Lims ID: 280-85298-A-5-A Lab Sample ID: 280-85298-5

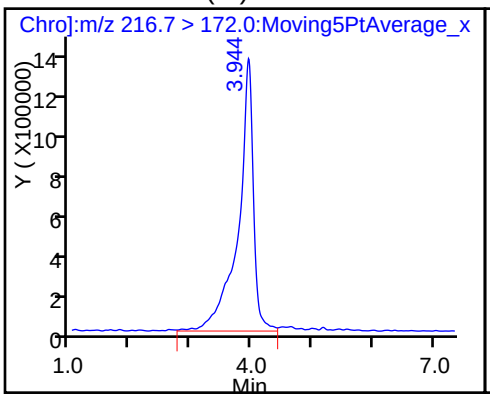
Client ID: SWF-OF-010

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 15

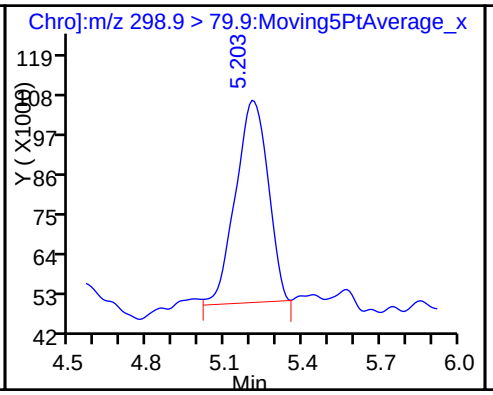
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

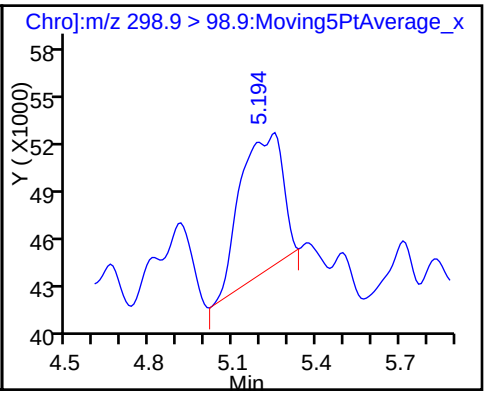
* 1 13C4 PFBA (IS)



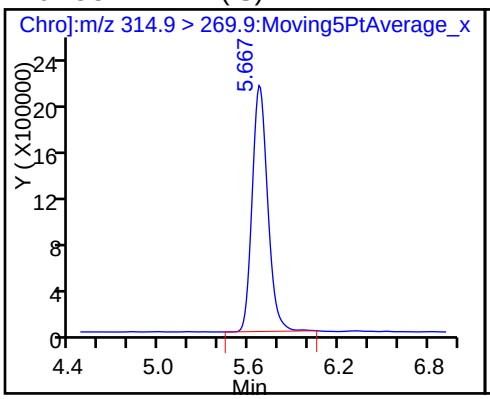
4 Perfluorobutane Sulfonate



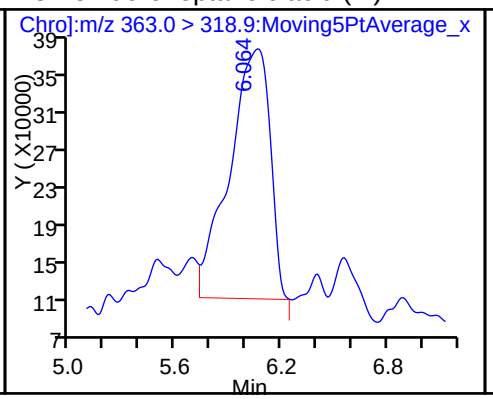
4 Perfluorobutane Sulfonate



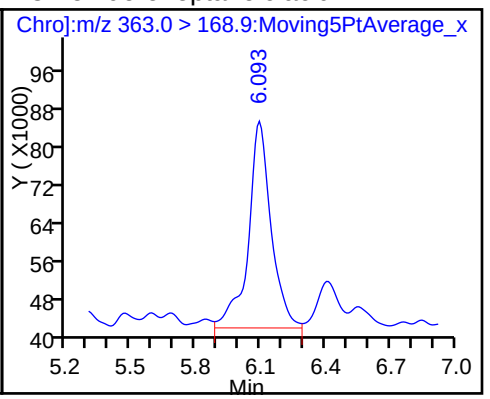
* 6 13C2 PFHxA (IS)



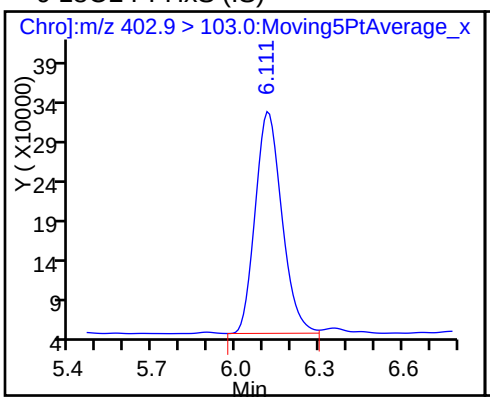
8 Perfluoroheptanoic acid (M)



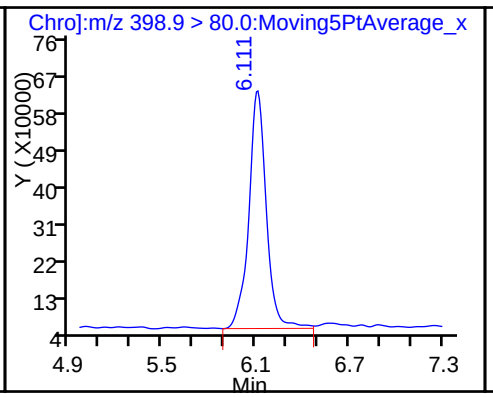
8 Perfluoroheptanoic acid



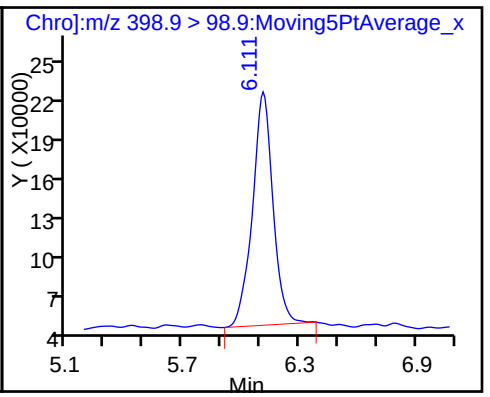
* 9 18O2 PFHxS (IS)



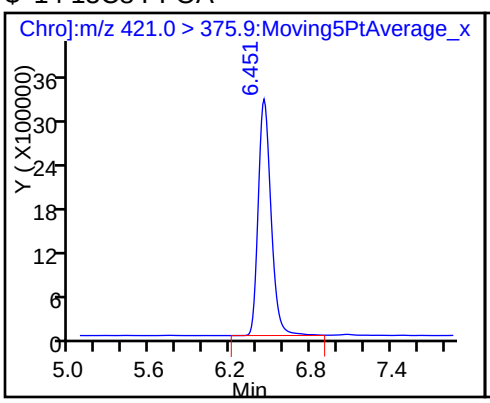
10 Perfluorohexane Sulfonate



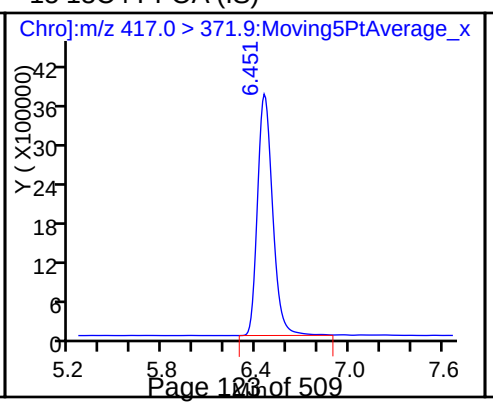
10 Perfluorohexane Sulfonate



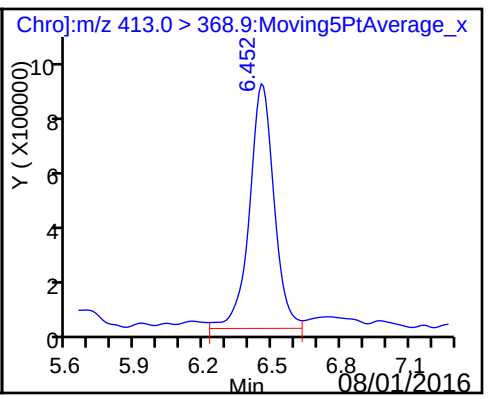
$ 14 13C8 PFOA



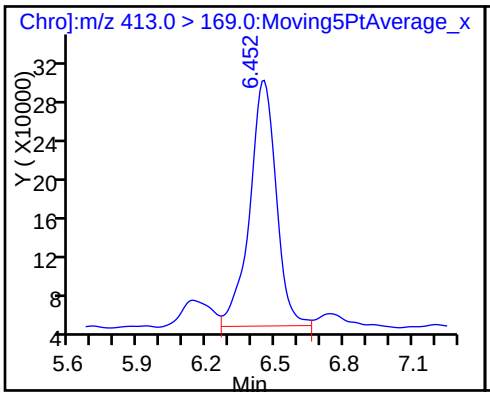
* 15 13C4 PFOA (IS)



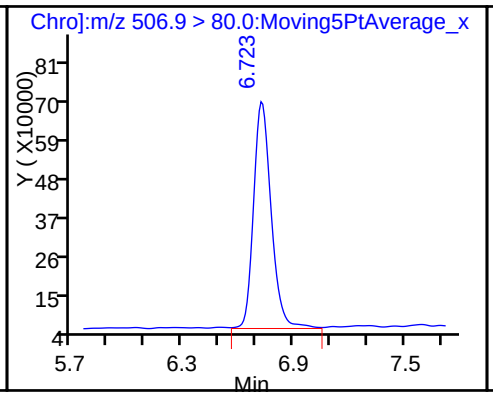
16 Perfluorooctanoic acid



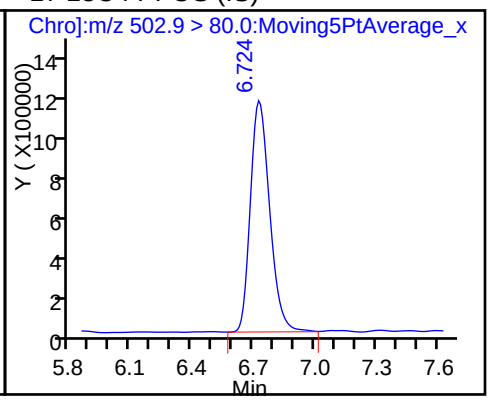
16 Perfluorooctanoic acid



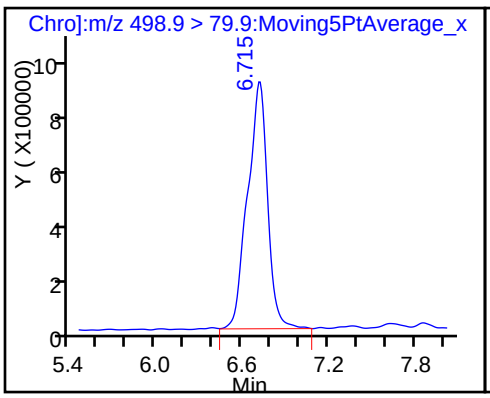
$ 18 13C8 PFOS



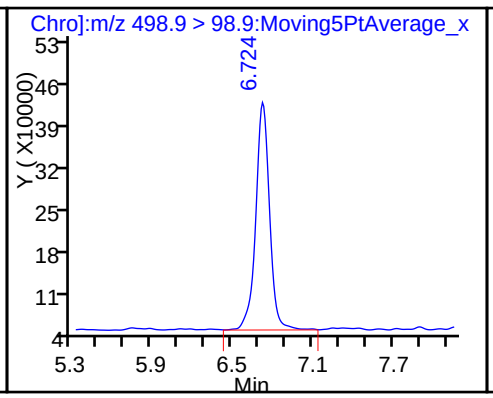
* 17 13C4 PFOS (IS)



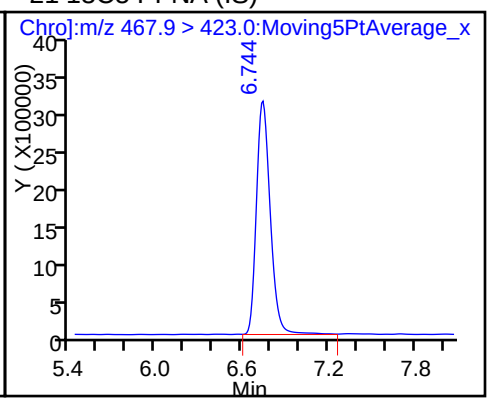
19 Perfluorooctane sulfonic acid



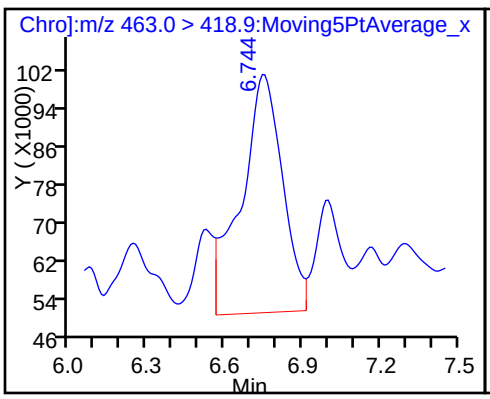
19 Perfluorooctane sulfonic acid



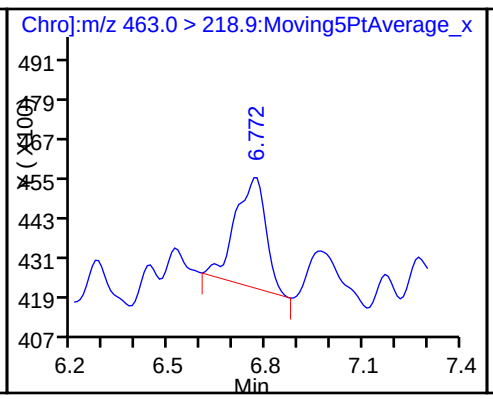
* 21 13C5 PFNA (IS)



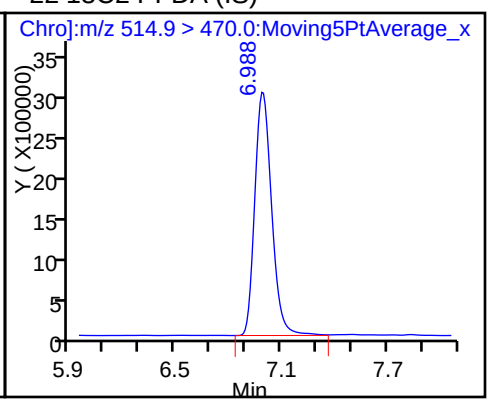
20 Perfluorononanoic acid



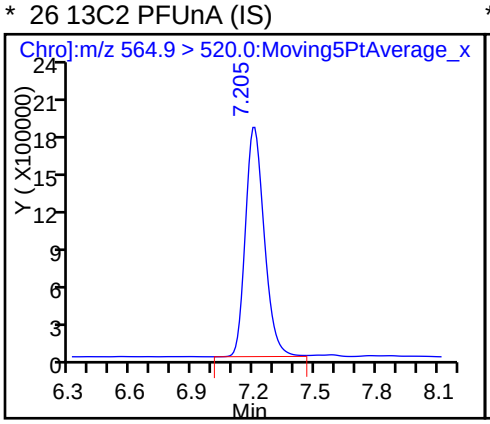
20 Perfluorononanoic acid



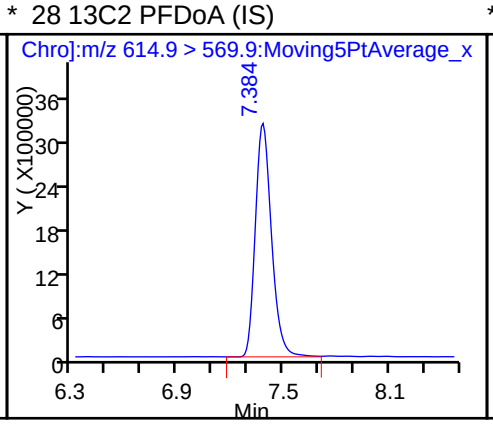
* 22 13C2 PFDA (IS)



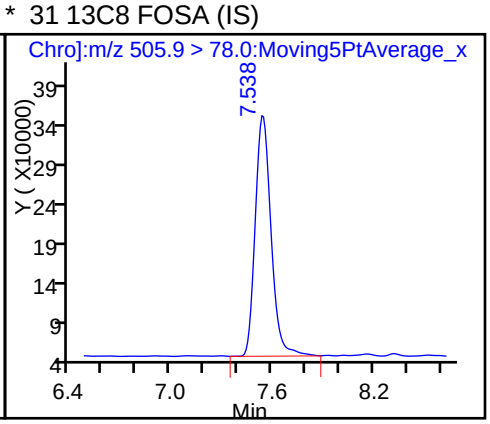
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



Manual Integration/User Assign Peak Report

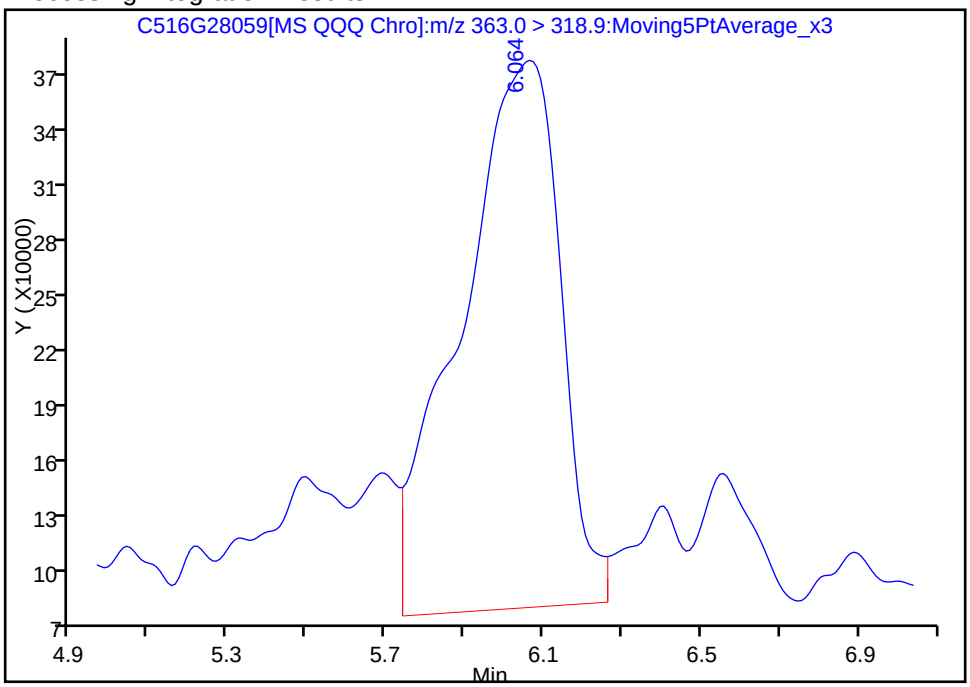
TestAmerica Denver

Data File:	\\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28059.d				
Injection Date:	28-Jul-2016 20:11:56	Instrument ID:	LC_LCMS5		
Lims ID:	280-85298-A-5-A	Lab Sample ID:	280-85298-5		
Client ID:	SWF-OF-010				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	15
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		
Column:		Detector	MS QQQ		

8 Perfluoroheptanoic acid, CAS: 375-85-9

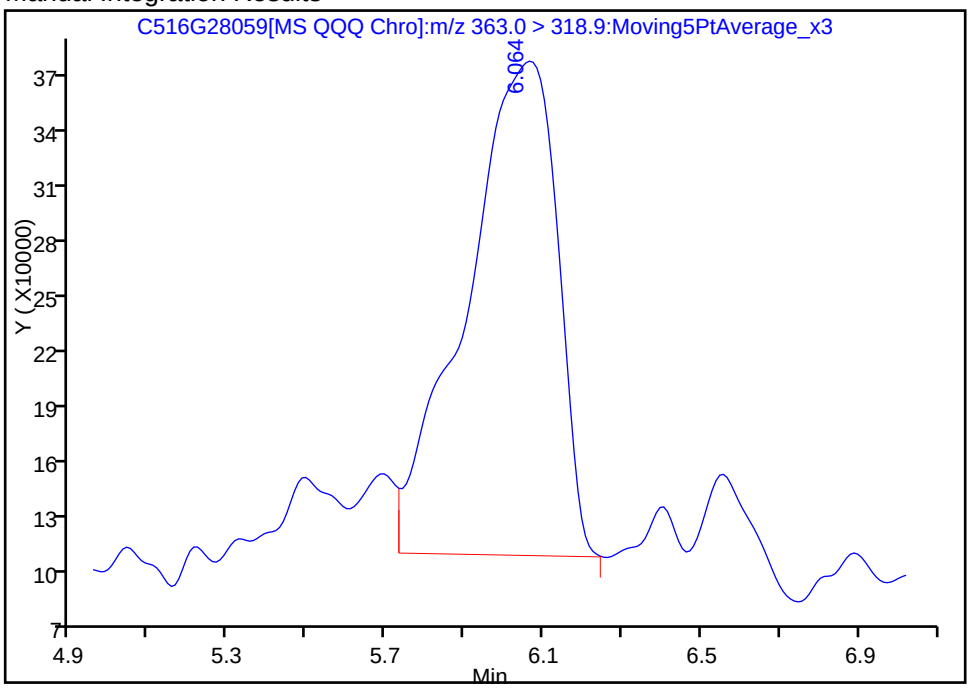
Processing Integration Results

RT: 6.06
Area: 5140952
Amount: 2.324363
Amount Units: ug/L



Manual Integration Results

RT: 6.06
Area: 4246023
Amount: 1.913922
Amount Units: ug/L



Reviewer: meyera, 29-Jul-2016 09:45:28
Audit Action: Manually Integrated
Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: SWF-OF-005 | Lab Sample ID: 280-85298-6

Matrix: Water | Lab File ID: PC516G18053.d

Analysis Method: DV-LC-0012 | Date Collected: 07/05/2016 13:00

Extraction Method: 3535 | Date Extracted: 07/16/2016 07:25

Sample wt/vol: 250.4(mL) | Date Analyzed: 07/18/2016 22:32

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 334166 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.0082	U *	0.020	0.0082
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.013	U	0.030	0.013
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.0070	U	0.030	0.0070
375-95-1	Perfluorononanoic acid (PFNA)	0.017	U	0.040	0.017
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.019	J	0.030	0.013
335-67-1	Perfluorooctanoic acid (PFOA)	0.0098	U	0.020	0.0098

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	102		60-155
STL01054	13C8 PFOS	105		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18053.d
Lims ID: 280-85298-B-6-A Lab Sample ID: 280-85298-6
Client ID: SWF-OF-005
Sample Type: Client
Inject. Date: 18-Jul-2016 22:32:33 ALS Bottle#: 0 Worklist Smp#: 48
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85298-B-6-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 19-Jul-2016 15:53:35 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK035

First Level Reviewer: fiedlerh Date: 19-Jul-2016 14:25:15

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.134	4.276	-0.142		31955064	10.0			
4 Perfluorobutane Sulfonate									RM
298.9 > 79.9	5.364	5.431	-0.067	0.858	217921	0.1570			RM
298.9 > 98.9	5.308	5.431	-0.123	0.849	33545		6.50(1.80-3.35)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.818	5.894	-0.076		20814021	10.0			
8 Perfluoroheptanoic acid									RM
363.0 > 318.9	6.244	6.320	-0.076	0.948	444440	0.1188			RM
363.0 > 168.9	6.235	6.320	-0.085	0.947	161767		2.75(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.253	6.329	-0.076		2649644	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.253	6.320	-0.067	1.000	276758	0.1717			R
398.9 > 98.9	6.253	6.320	-0.067	1.000	102572		2.70(1.30-2.41)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.584	6.660	-0.076	1.000	27819617	10.2			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.584	6.669	-0.085		33662478	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.584	6.660	-0.076	1.000	1090096	0.2413			
413.0 > 169.0	6.584	6.660	-0.076	1.000	374785		2.91(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.856	6.932	-0.076	1.000	5578770	10.0			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.856	6.932	-0.076		8691367	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.847	6.932	-0.085	0.999	1101438	0.9694			R
498.9 > 98.9	6.857	6.932	-0.075	1.000	281927		3.91(1.31-2.43)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.876	6.952	-0.076		26706507	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9		6.952				ND			
463.0 > 218.9		6.952							
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.121	7.196	-0.075		25557498	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.328	7.395	-0.067		15037480	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.507	7.573	-0.066		25927606	10.0			
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.652	7.728	-0.076		2702934	10.0			

QC Flag Legend

Processing Flags
- ND - Not Detected or Marked ND
- R - Failed Signal Ratio Test
- s - Failed ISTD Recovery Test

Review Flags
- M - Manually Integrated

Report Date: 19-Jul-2016 15:53:52 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18053.d

Injection Date: 18-Jul-2016 22:32:33 Instrument ID: LC_LCMS5

Lims ID: 280-85298-B-6-A Lab Sample ID: 280-85298-6

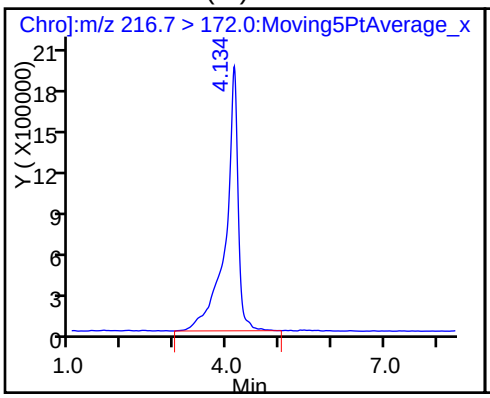
Client ID: SWF-OF-005

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 48

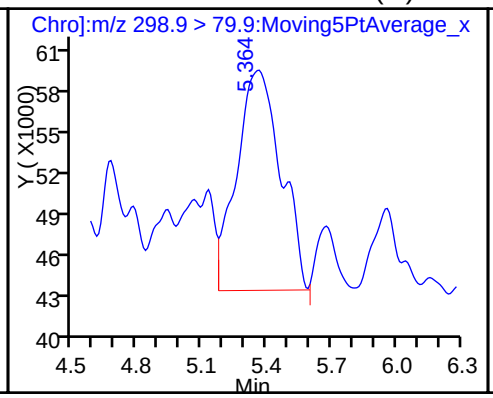
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

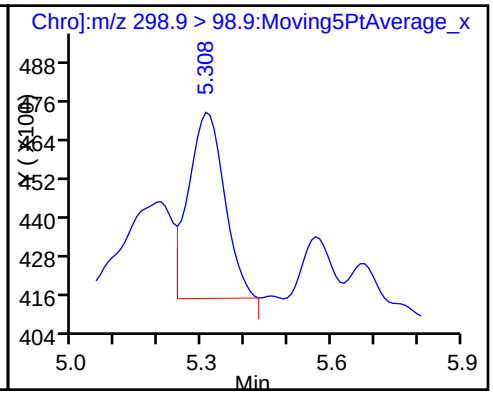
* 1 13C4 PFBA (IS)



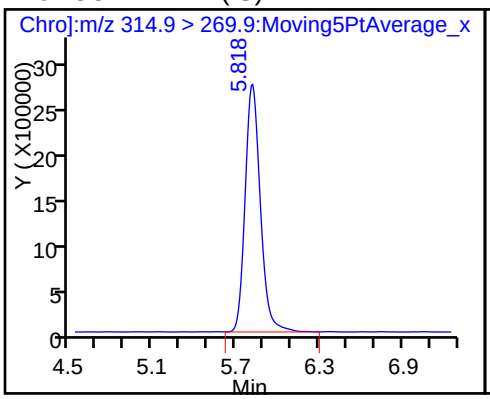
4 Perfluorobutane Sulfonate (M)



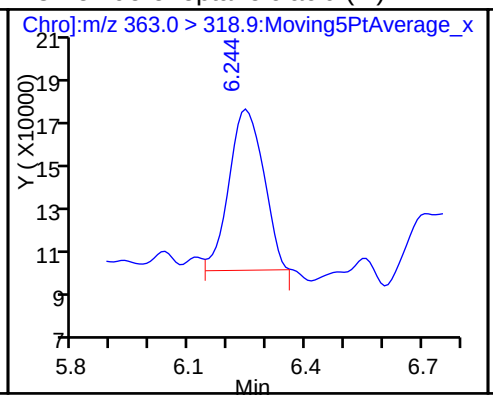
4 Perfluorobutane Sulfonate



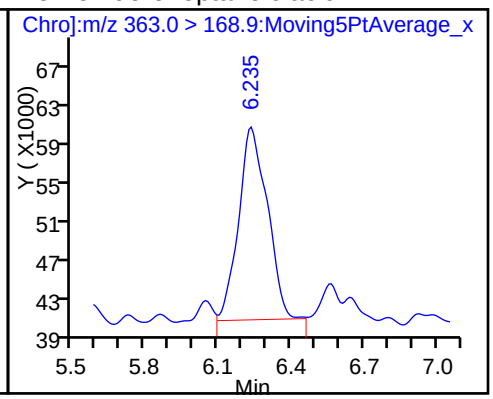
* 6 13C2 PFHxA (IS)



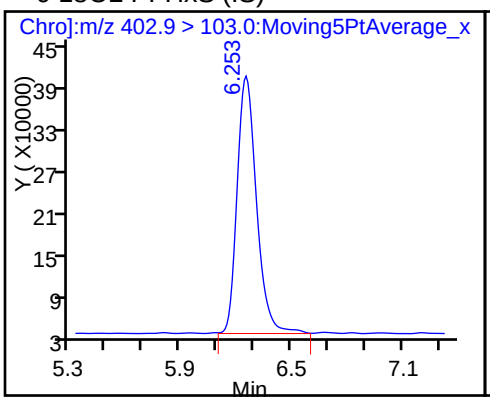
8 Perfluoroheptanoic acid (M)



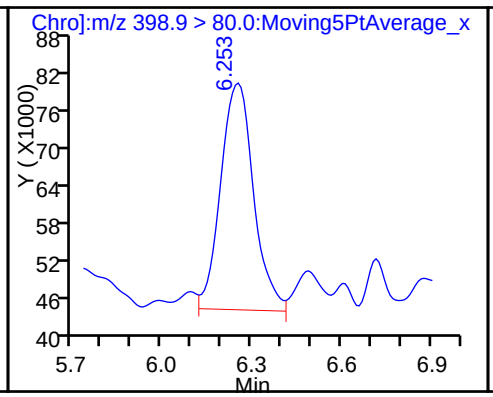
8 Perfluoroheptanoic acid



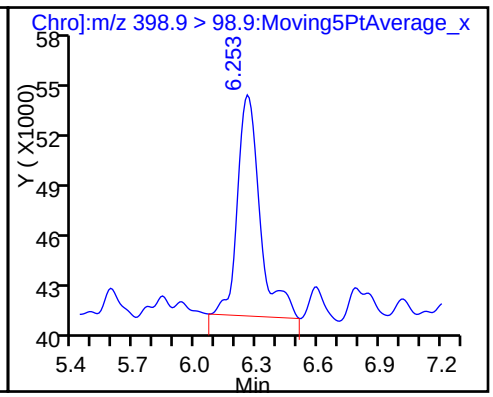
* 9 18O2 PFHxS (IS)



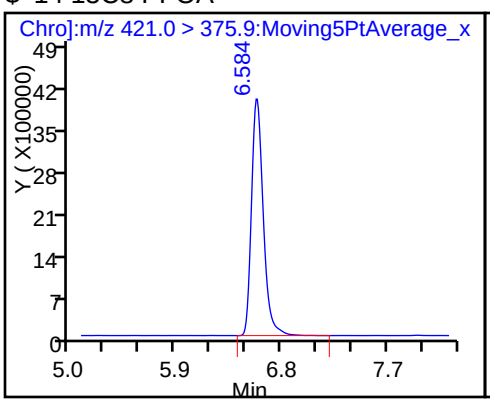
10 Perfluorohexane Sulfonate



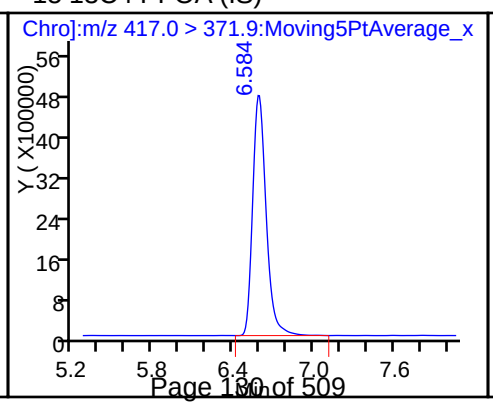
10 Perfluorohexane Sulfonate



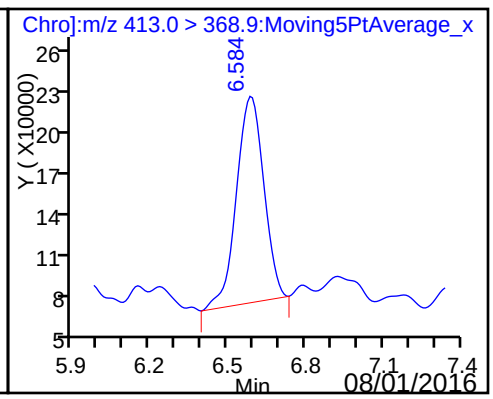
$ 14 13C8 PFOA



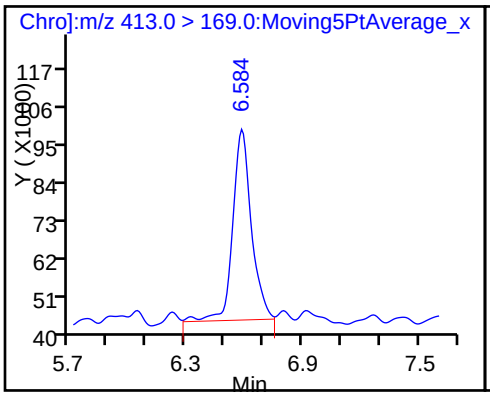
* 15 13C4 PFOA (IS)



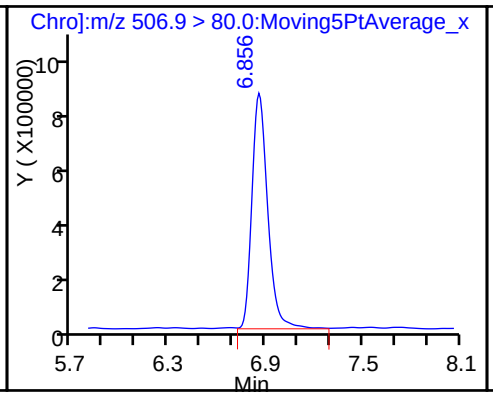
16 Perfluorooctanoic acid



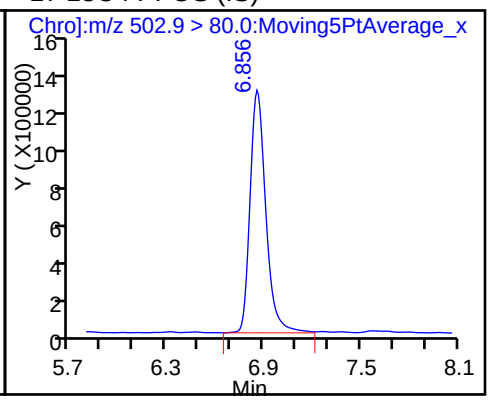
16 Perfluorooctanoic acid



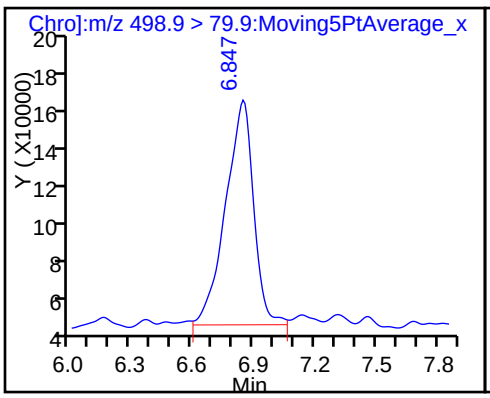
$ 18 13C8 PFOS



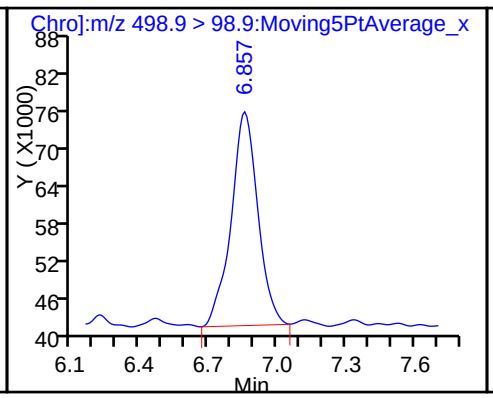
* 17 13C4 PFOS (IS)



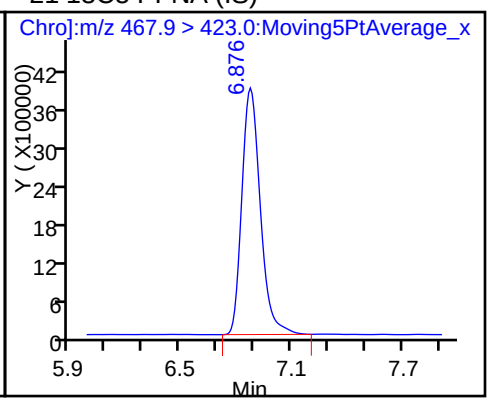
19 Perfluorooctane sulfonic acid



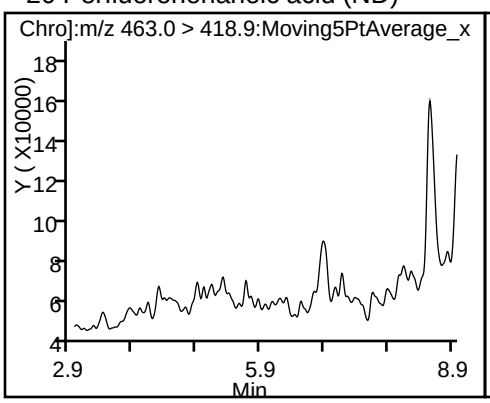
19 Perfluorooctane sulfonic acid



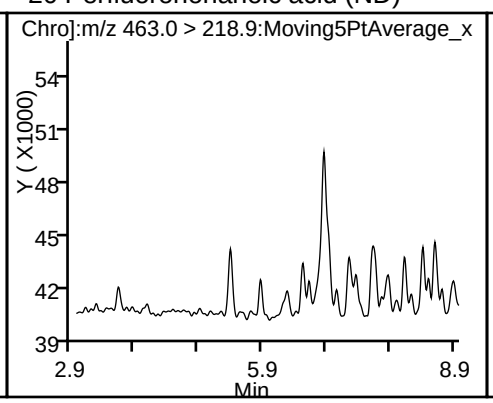
* 21 13C5 PFNA (IS)



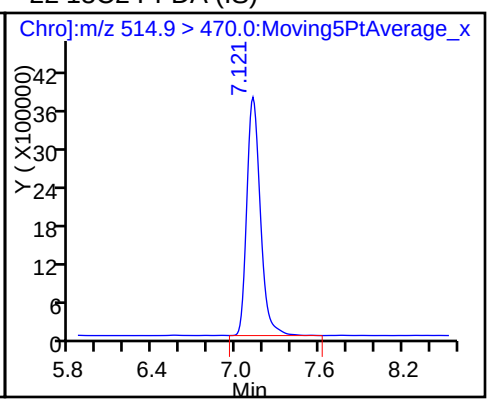
20 Perfluorononanoic acid (ND)



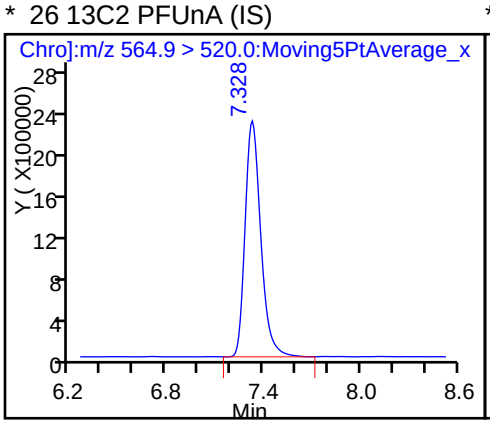
20 Perfluorononanoic acid (ND)



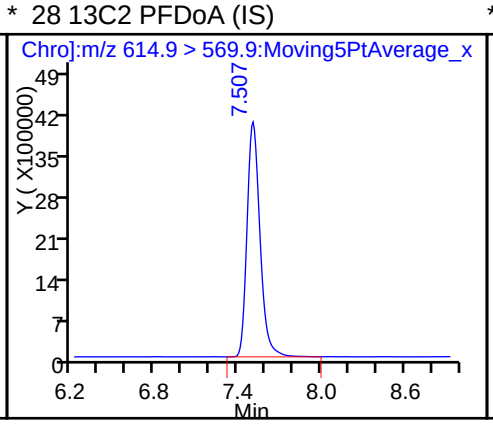
* 22 13C2 PFDA (IS)



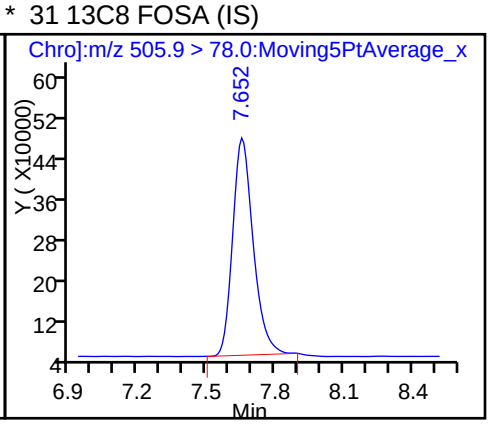
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



Manual Integration/User Assign Peak Report

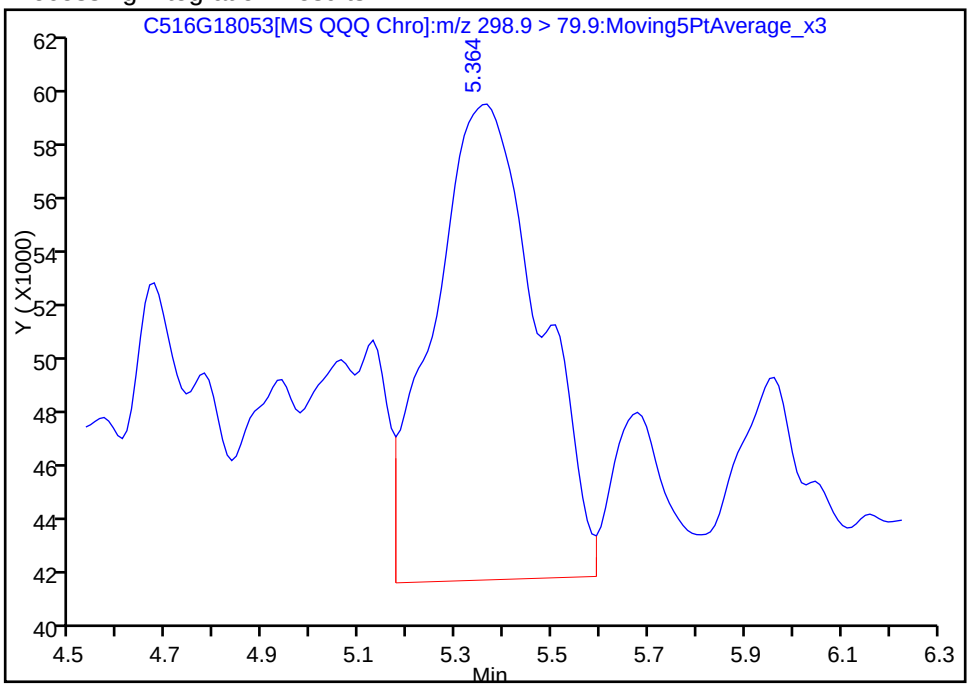
TestAmerica Denver

Data File:	\\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18053.d				
Injection Date:	18-Jul-2016 22:32:33	Instrument ID:	LC_LCMS5		
Lims ID:	280-85298-B-6-A	Lab Sample ID:	280-85298-6		
Client ID:	SWF-OF-005				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	48
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		
Column:		Detector	MS QQQ		

4 Perfluorobutane Sulfonate, CAS: 29420-43-3

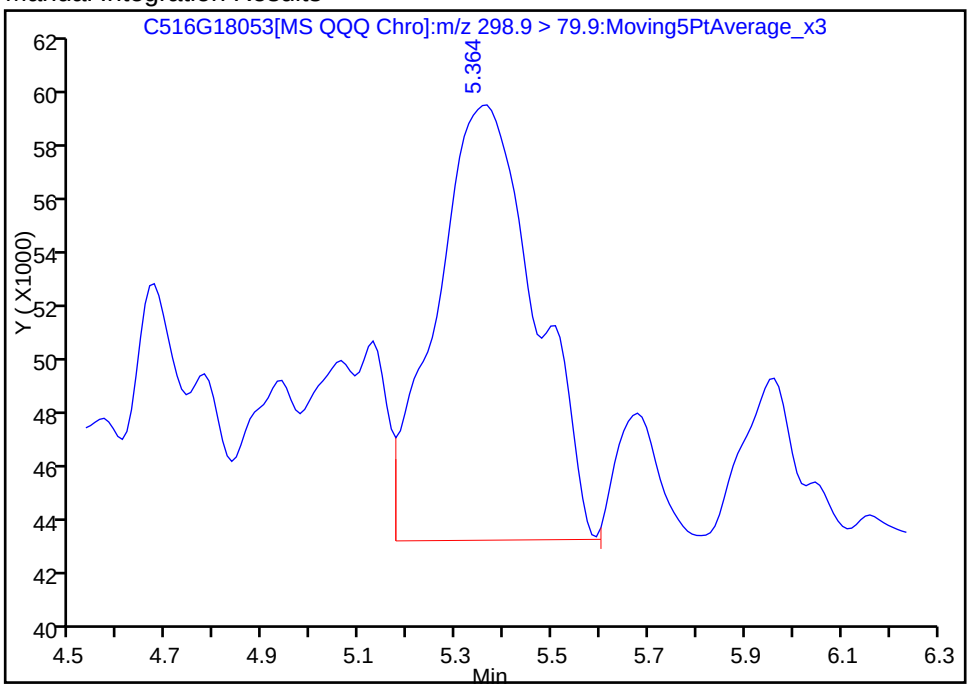
Processing Integration Results

RT: 5.36
Area: 253050
Amount: 0.180937
Amount Units: ug/L



Manual Integration Results

RT: 5.36
Area: 217921
Amount: 0.156951
Amount Units: ug/L



Reviewer: fiedlerh, 19-Jul-2016 14:25:15
Audit Action: Manually Integrated
Audit Reason: Baseline

Manual Integration/User Assign Peak Report

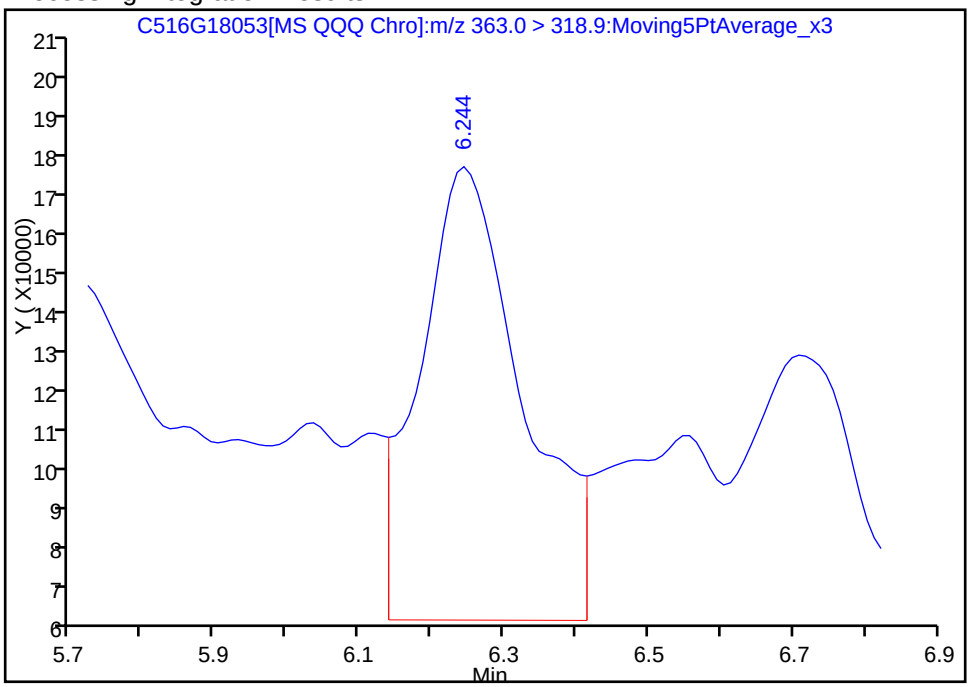
TestAmerica Denver

Data File:	\\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18053.d				
Injection Date:	18-Jul-2016 22:32:33	Instrument ID:	LC_LCMS5		
Lims ID:	280-85298-B-6-A	Lab Sample ID:	280-85298-6		
Client ID:	SWF-OF-005				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	48
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		
Column:		Detector	MS QQQ		

8 Perfluoroheptanoic acid, CAS: 375-85-9

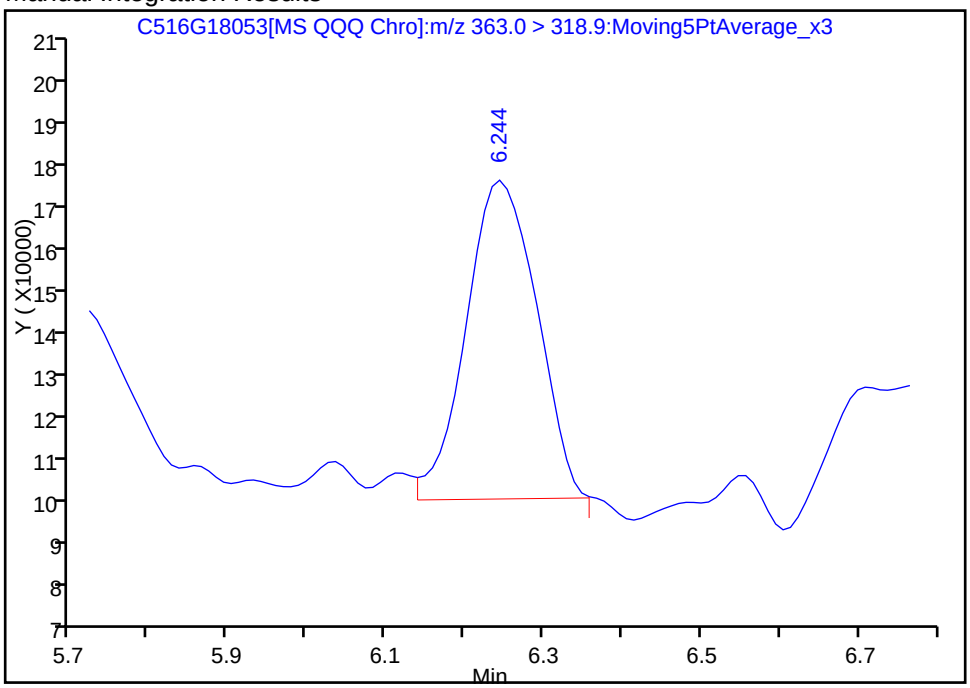
Processing Integration Results

RT: 6.24
Area: 1100749
Amount: 0.343724
Amount Units: ug/L



Manual Integration Results

RT: 6.24
Area: 444440
Amount: 0.118848
Amount Units: ug/L



Reviewer: fiedlerh, 19-Jul-2016 14:25:15
Audit Action: Manually Integrated
Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: SWF-OF-005 RE | Lab Sample ID: 280-85298-6 RE

Matrix: Water | Lab File ID: PC516G28060.d

Analysis Method: DV-LC-0012 | Date Collected: 07/05/2016 13:00

Extraction Method: 3535 | Date Extracted: 07/25/2016 10:50

Sample wt/vol: 255.8(mL) | Date Analyzed: 07/28/2016 20:24

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 335652 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	*Perfluorobutane Sulfonate (PFBS)*	*0.0081*	*U H*	*0.020*	*0.0081*
375-85-9	*Perfluoroheptanoic acid (PFHpA)*	*0.013*	*U H*	*0.029*	*0.013*
108427-53-8	*Perfluorohexane Sulfonate (PFHxS)*	*0.0068*	*U H*	*0.029*	*0.0068*
375-95-1	*Perfluorononanoic acid (PFNA)*	*0.017*	*U H*	*0.039*	*0.017*
1763-23-1	*Perfluorooctanesulfonic acid (PFOS)*	*0.017*	*J H*	*0.029*	*0.013*
335-67-1	*Perfluorooctanoic acid (PFOA)*	*0.0096*	*U H*	*0.020*	*0.0096*

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	105		60-155
STL01054	13C8 PFOS	103		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28060.d
Lims ID: 280-85298-A-6-A Lab Sample ID: 280-85298-6
Client ID: SWF-OF-005
Sample Type: Client
Inject. Date: 28-Jul-2016 20:24:15 ALS Bottle#: 0 Worklist Smp#: 16
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85298-A-6-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 29-Jul-2016 10:37:26 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK010

First Level Reviewer: meyera Date: 29-Jul-2016 09:46:02

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	3.916	4.029	-0.113		20871724	10.0			
4 Perfluorobutane Sulfonate									R
298.9 > 79.9	5.232	5.241	-0.009	0.857	117253	0.1125			R
298.9 > 98.9	5.184	5.241	-0.057	0.850	88863		1.32(1.80-3.35)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.657	5.695	-0.038		16472437	10.0			
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.102	6.112	-0.010	0.947	688440	0.2888			
363.0 > 168.9	6.083	6.112	-0.029	0.944	142978		4.82(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.102	6.120	-0.018		2032813	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.121	6.130	-0.009	1.003	222629	0.1842			R
398.9 > 98.9	6.121	6.130	-0.009	1.003	79768		2.79(1.30-2.41)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.442	6.470	-0.028	1.000	20496626	10.3			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.442	6.461	-0.019		24642181	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.442	6.461	-0.019	1.000	1290319	0.4345			
413.0 > 169.0	6.442	6.461	-0.019	1.000	413799		3.12(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.714	6.742	-0.028	1.000	4176399	9.60			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.714	6.743	-0.029		6804093	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9	6.715	6.743	-0.028	1.000	760071	0.8460			
498.9 > 98.9	6.705	6.743	-0.038	0.999	342783		2.22(1.31-2.43)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.734	6.753	-0.019		20504663	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9		6.753				ND			
463.0 > 218.9		6.753							
* 22 13C2 PFDA (IS)									
514.9 > 470.0	6.988	7.007	-0.019		17303265	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.196	7.215	-0.019		7990701	10.0			
* 28 13C2 PFDoA (IS)									s
614.9 > 569.9	7.375	7.393	-0.018		13518345	10.0			
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.529	7.557	-0.028		1666469	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND
R - Failed Signal Ratio Test
s - Failed ISTD Recovery Test

Report Date: 29-Jul-2016 10:37:33 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28060.d

Injection Date: 28-Jul-2016 20:24:15 Instrument ID: LC_LCMS5

Lims ID: 280-85298-A-6-A Lab Sample ID: 280-85298-6

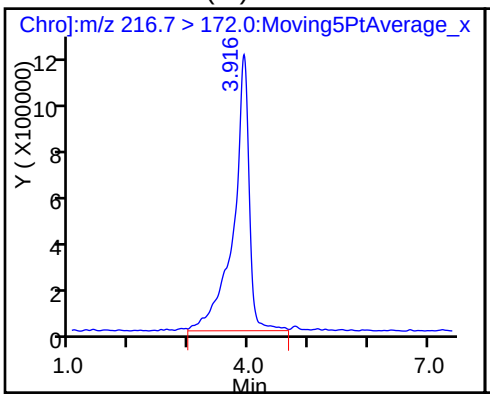
Client ID: SWF-OF-005

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 16

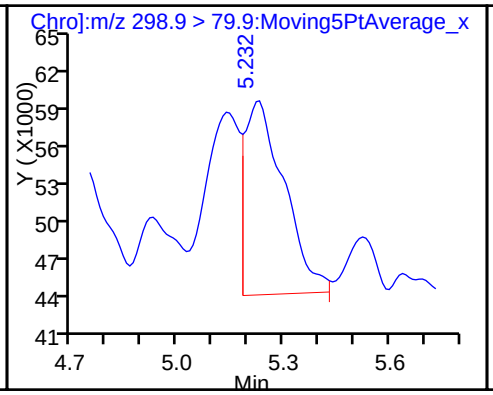
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

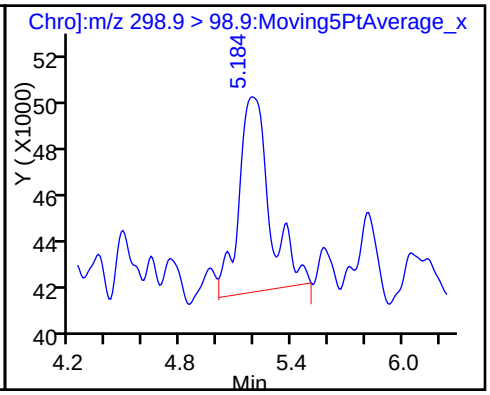
* 1 13C4 PFBA (IS)



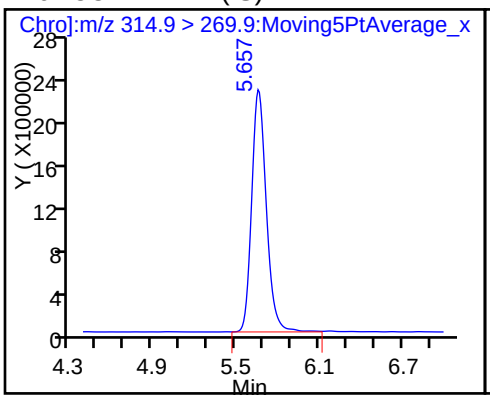
4 Perfluorobutane Sulfonate



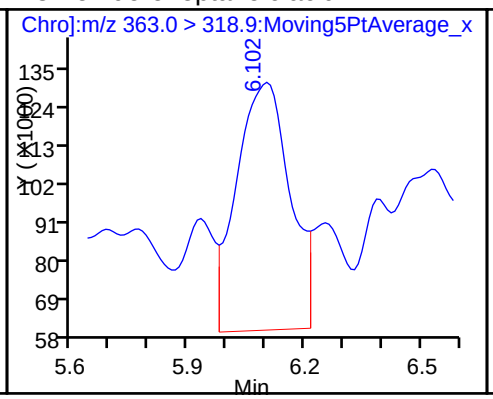
4 Perfluorobutane Sulfonate



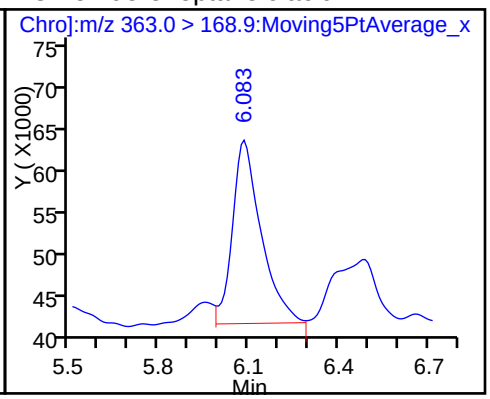
* 6 13C2 PFHxA (IS)



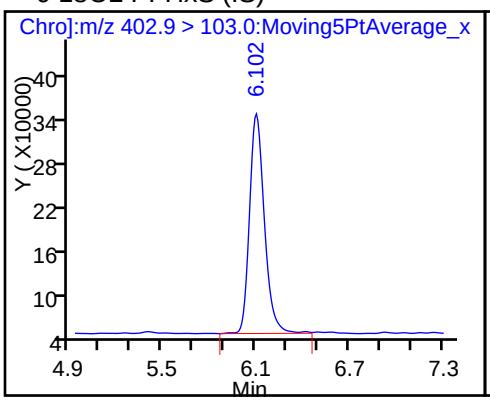
8 Perfluoroheptanoic acid



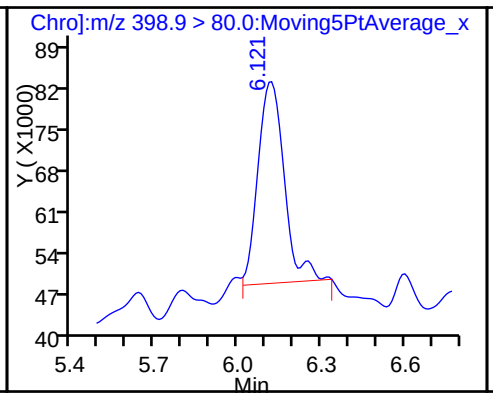
8 Perfluoroheptanoic acid



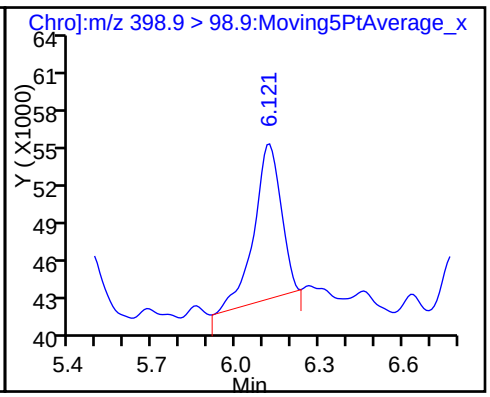
* 9 18O2 PFHxS (IS)



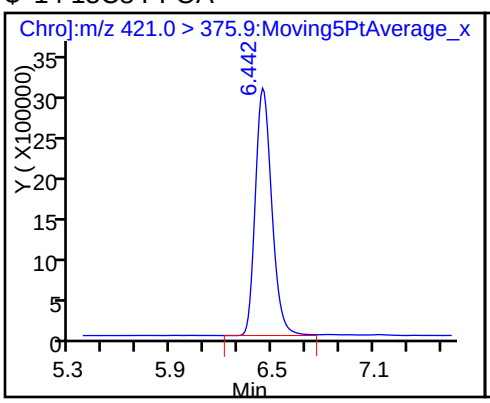
10 Perfluorohexane Sulfonate



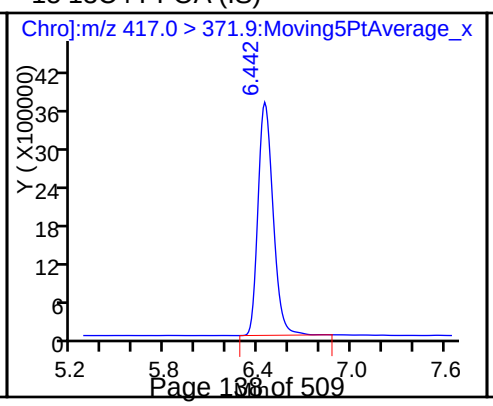
10 Perfluorohexane Sulfonate



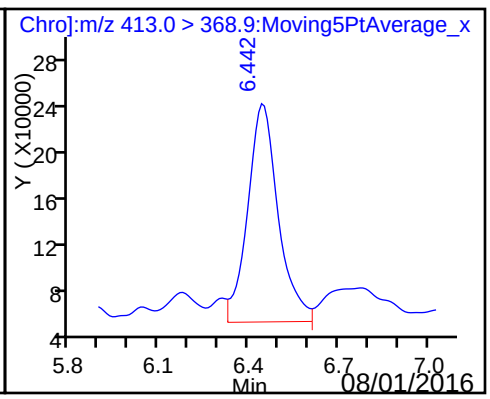
$ 14 13C8 PFOA



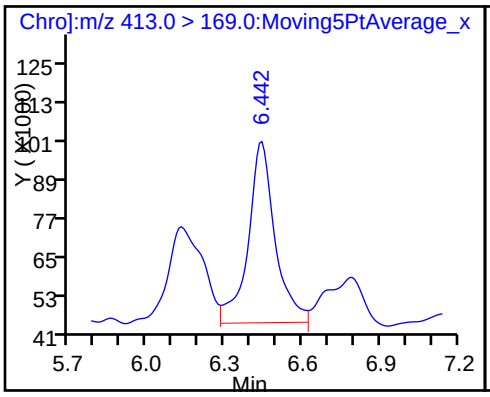
* 15 13C4 PFOA (IS)



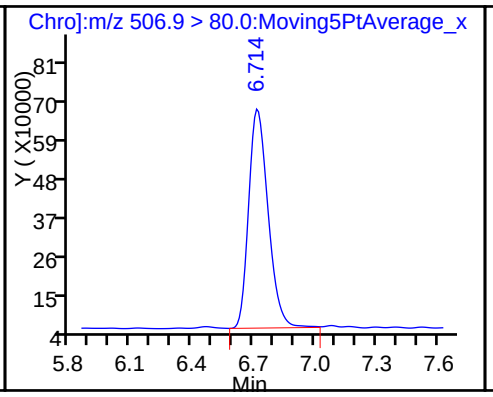
16 Perfluorooctanoic acid



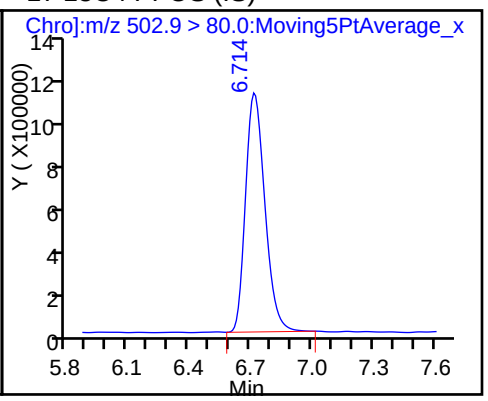
16 Perfluorooctanoic acid



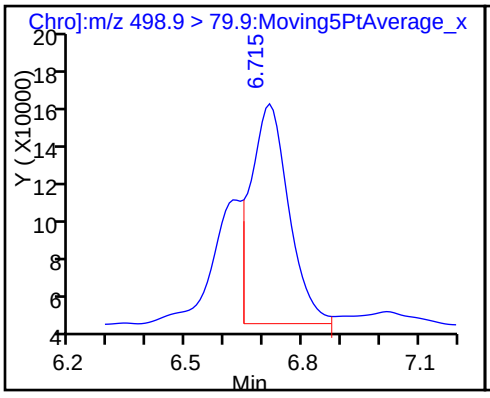
$ 18 13C8 PFOS



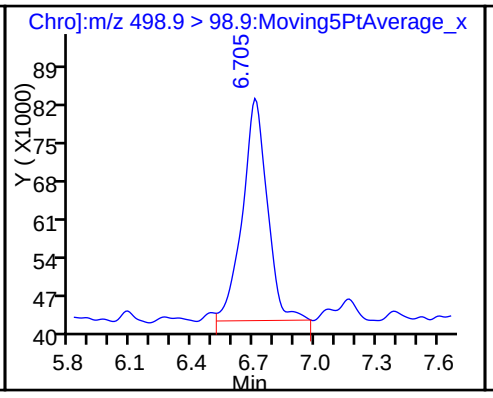
* 17 13C4 PFOS (IS)



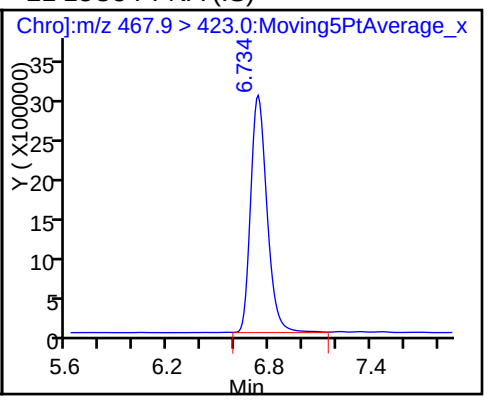
19 Perfluorooctane sulfonic acid



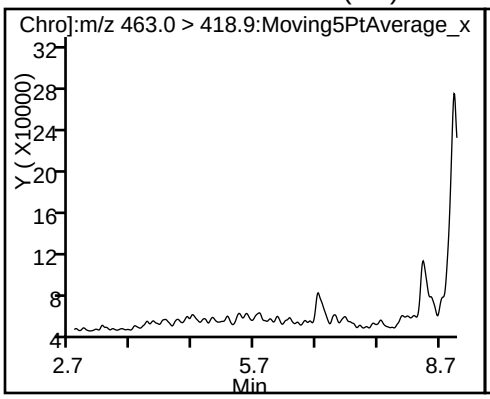
19 Perfluorooctane sulfonic acid



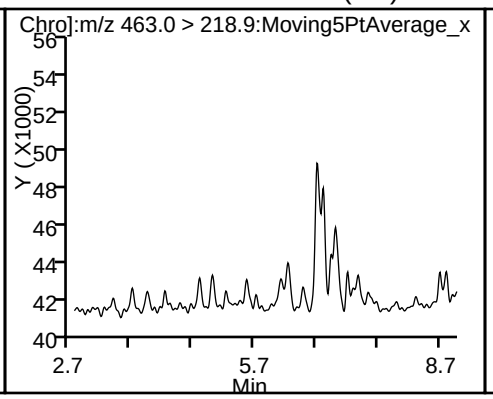
* 21 13C5 PFNA (IS)



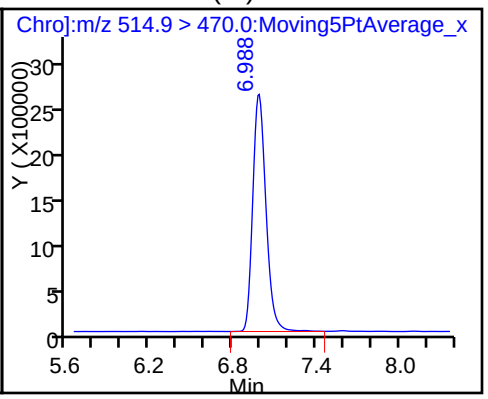
20 Perfluorononanoic acid (ND)



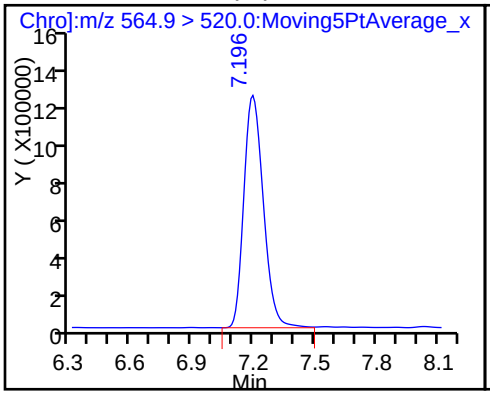
20 Perfluorononanoic acid (ND)



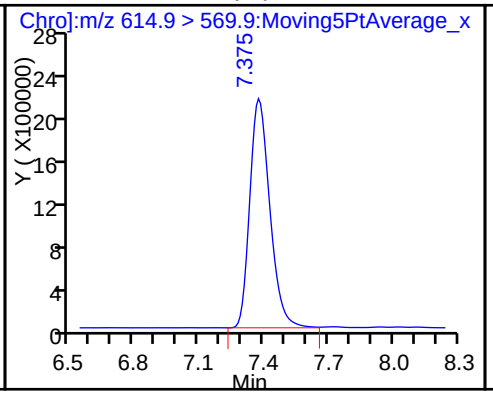
* 22 13C2 PFDA (IS)



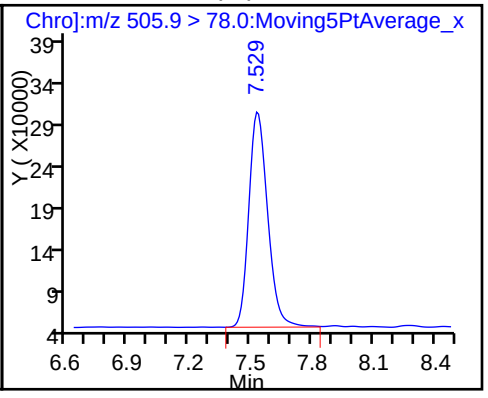
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: SWF-OF-003 | Lab Sample ID: 280-85298-7

Matrix: Water | Lab File ID: PC516G18054.d

Analysis Method: DV-LC-0012 | Date Collected: 07/05/2016 13:25

Extraction Method: 3535 | Date Extracted: 07/16/2016 07:25

Sample wt/vol: 243.9(mL) | Date Analyzed: 07/18/2016 22:44

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 334166 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.0084	U *	0.021	0.0084
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.015	J	0.031	0.014
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.021	J	0.031	0.0071
375-95-1	Perfluorononanoic acid (PFNA)	0.018	U	0.041	0.018
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.047		0.031	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.015	J	0.021	0.010

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	105		60-155
STL01054	13C8 PFOS	98		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18054.d
Lims ID: 280-85298-B-7-A Lab Sample ID: 280-85298-7
Client ID: SWF-OF-003
Sample Type: Client
Inject. Date: 18-Jul-2016 22:44:51 ALS Bottle#: 0 Worklist Smp#: 49
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85298-B-7-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 19-Jul-2016 15:53:35 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK035

First Level Reviewer: fiedlerh Date: 19-Jul-2016 14:27:15

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.172	4.276	-0.104		31728812	10.0			
4 Perfluorobutane Sulfonate									R7M
298.9 > 79.9	5.393	5.431	-0.038	0.860	70848	0.0597			R7M
298.9 > 98.9	5.412	5.431	-0.019	0.863	51306		1.38(1.80-3.35)		
LOD = 0.0700									
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.837	5.894	-0.057		20854341	10.0			
8 Perfluoroheptanoic acid									M
363.0 > 318.9	6.273	6.320	-0.047	0.949	2148660	0.7474			M
363.0 > 168.9	6.263	6.320	-0.057	0.947	509167		4.22(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.272	6.329	-0.057		2487755	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.263	6.320	-0.057	0.999	1120131	1.02			R
398.9 > 98.9	6.272	6.320	-0.048	1.000	318441		3.52(1.30-2.41)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.612	6.660	-0.048	1.000	26933305	10.5			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.612	6.669	-0.057		31739862	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.613	6.660	-0.047	1.000	2672422	0.7423			
413.0 > 169.0	6.613	6.660	-0.047	1.000	889406		3.00(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.875	6.932	-0.057	1.000	4923496	9.35			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.875	6.932	-0.057		8234468	9.56			
19 Perfluorooctane sulfonic acid									RM
498.9 > 79.9	6.866	6.932	-0.066	0.999	2389063	2.31			RM
498.9 > 98.9	6.639	6.932	-0.293	0.966	2734		873.83(1.31-2.43)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.895	6.952	-0.057		25834918	10.0			
20 Perfluorononanoic acid									R
463.0 > 418.9	6.895	6.952	-0.057	1.000	499939	0.1296			R
463.0 > 218.9	6.895	6.952	-0.057	1.000	92310		5.42(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.140	7.196	-0.056		23286340	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.347	7.395	-0.048		14297512	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.526	7.573	-0.047		24997428	10.0			
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.671	7.728	-0.057		1739455	10.0			

QC Flag Legend

Processing Flags
- R - Failed Signal Ratio Test
- 7 - Failed Limit of Detection
- s - Failed ISTD Recovery Test

Review Flags
- M - Manually Integrated

Report Date: 19-Jul-2016 15:53:54 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18054.d

Injection Date: 18-Jul-2016 22:44:51 Instrument ID: LC_LCMS5

Lims ID: 280-85298-B-7-A Lab Sample ID: 280-85298-7

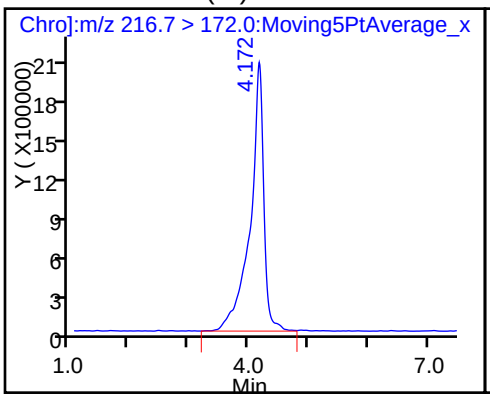
Client ID: SWF-OF-003

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 49

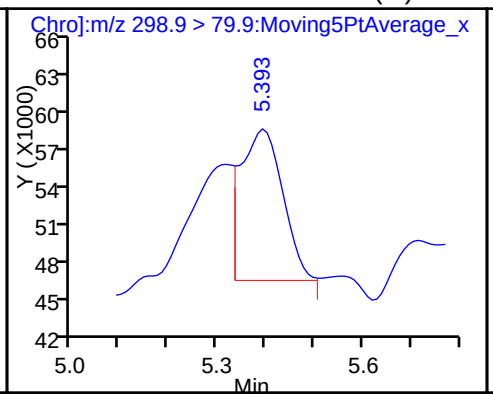
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

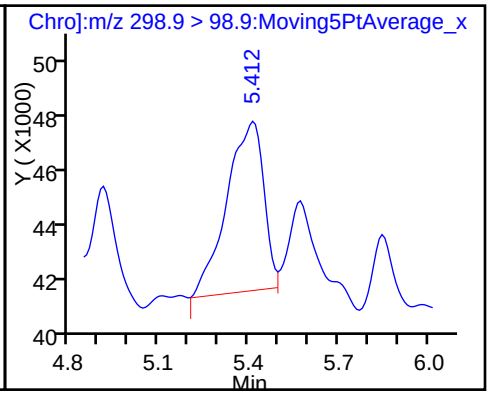
* 1 13C4 PFBA (IS)



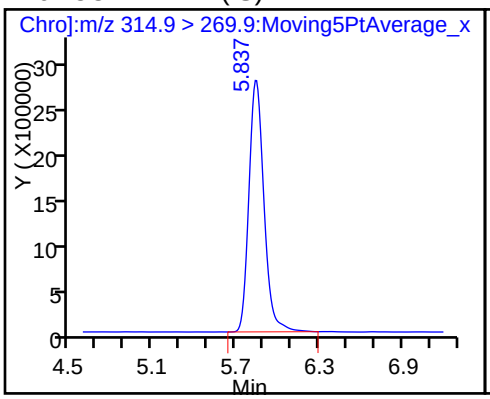
4 Perfluorobutane Sulfonate (M)



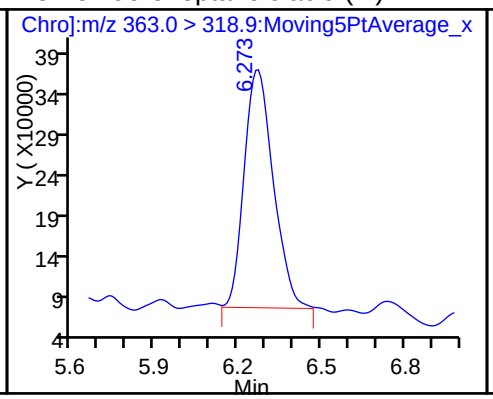
4 Perfluorobutane Sulfonate



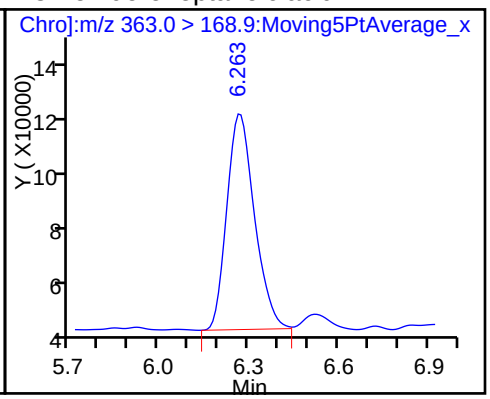
* 6 13C2 PFHxA (IS)



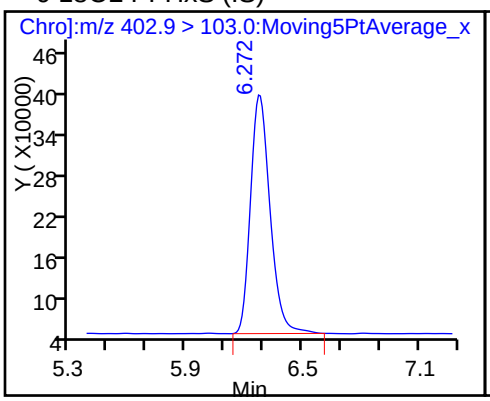
8 Perfluoroheptanoic acid (M)



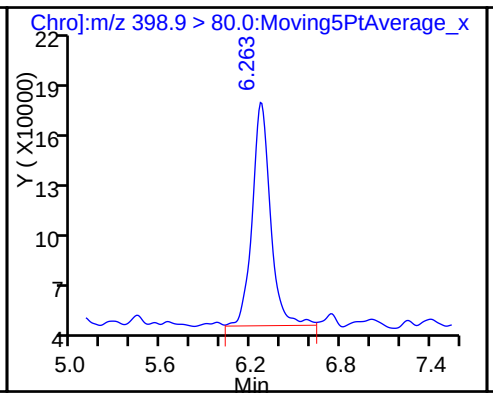
8 Perfluoroheptanoic acid



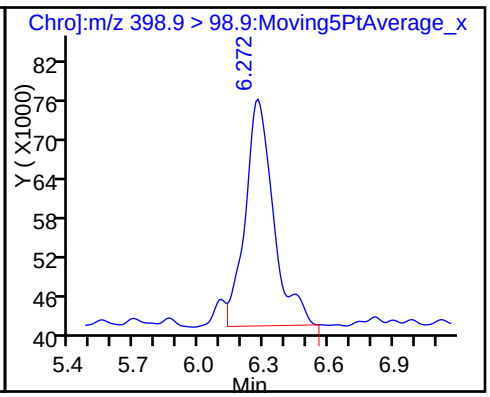
* 9 18O2 PFHxS (IS)



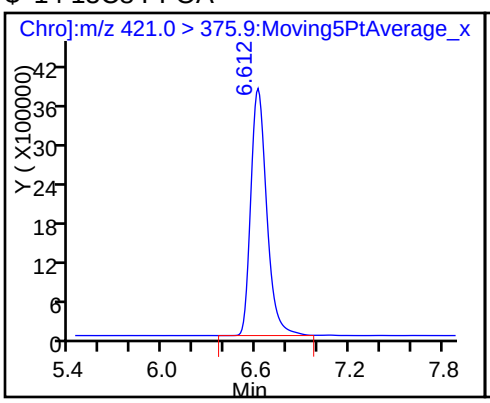
10 Perfluorohexane Sulfonate



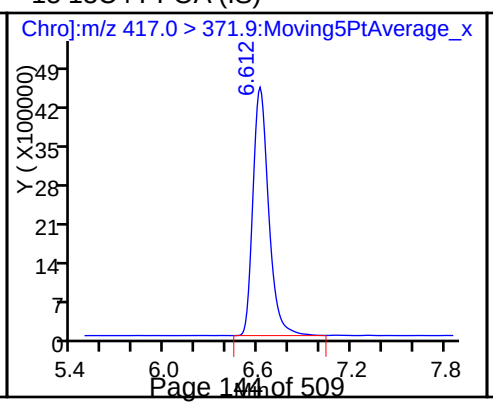
10 Perfluorohexane Sulfonate



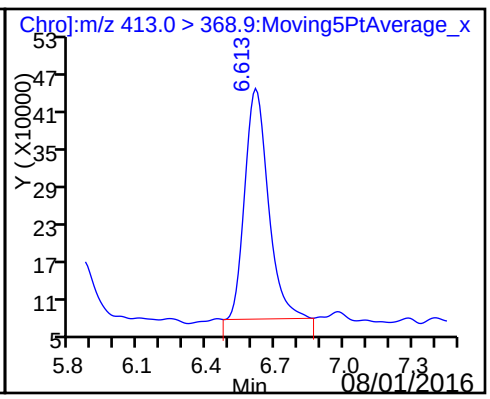
$ 14 13C8 PFOA



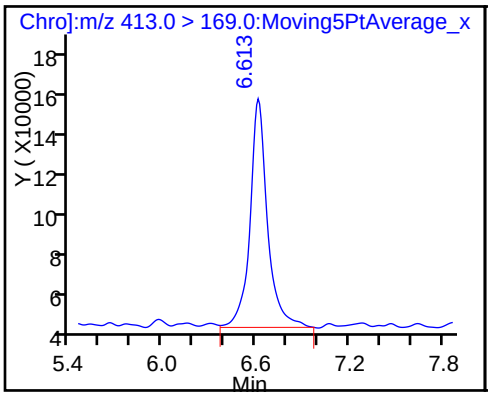
* 15 13C4 PFOA (IS)



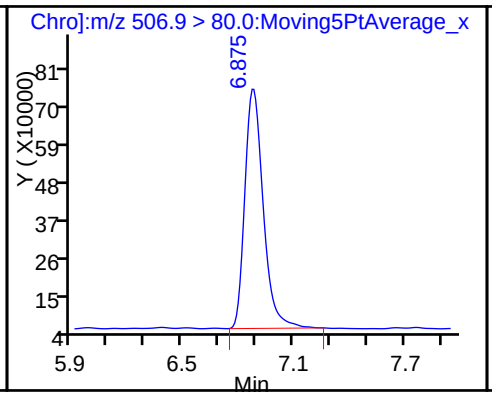
16 Perfluorooctanoic acid



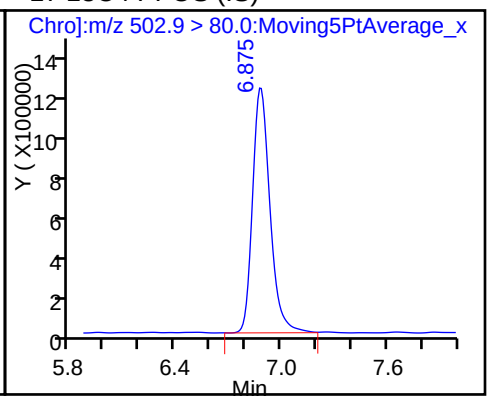
16 Perfluorooctanoic acid



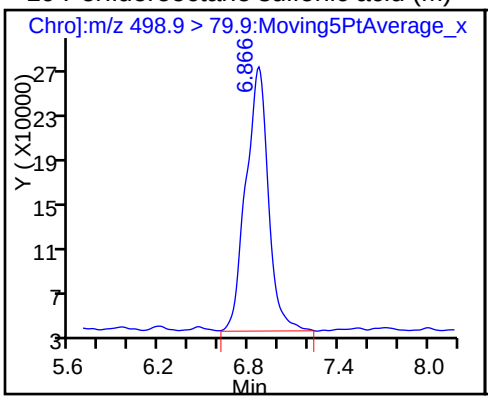
$ 18 13C8 PFOS



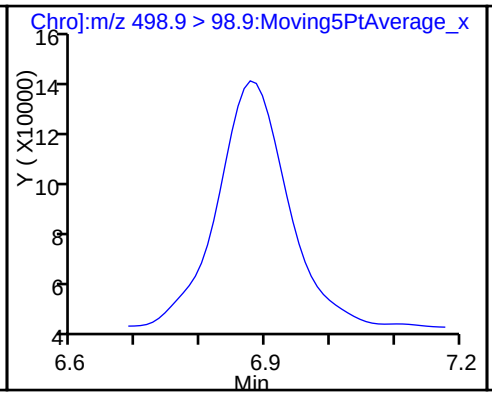
* 17 13C4 PFOS (IS)



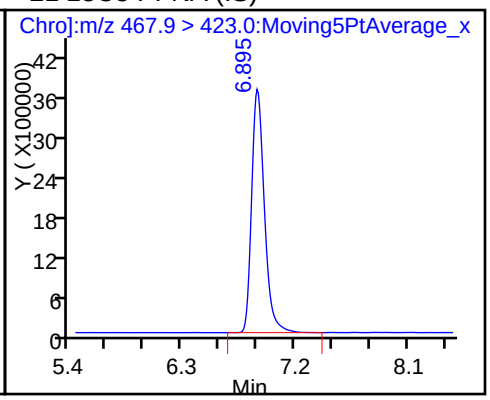
19 Perfluorooctane sulfonic acid (M)



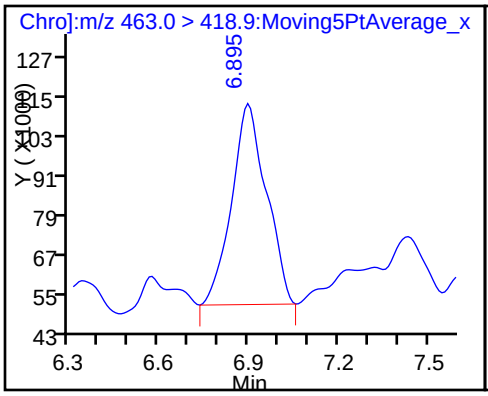
19 Perfluorooctane sulfonic acid



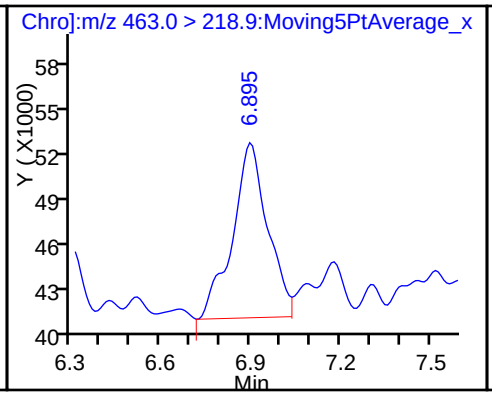
* 21 13C5 PFNA (IS)



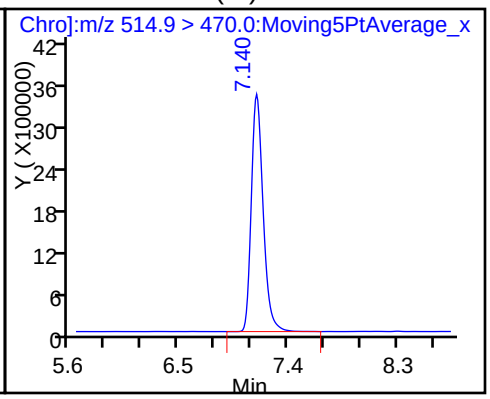
20 Perfluorononanoic acid



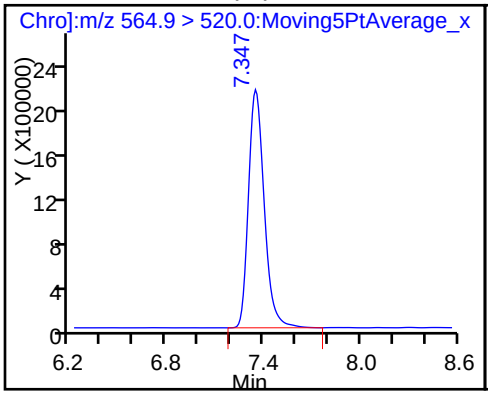
20 Perfluorononanoic acid



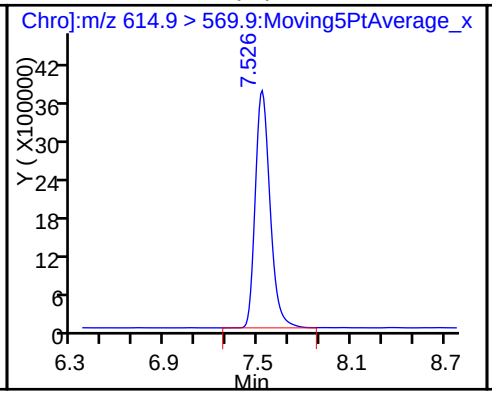
* 22 13C2 PFDA (IS)



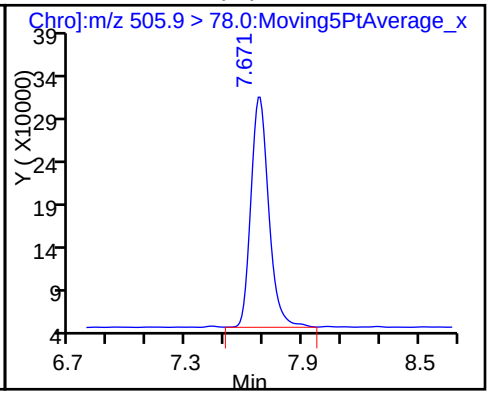
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



Manual Integration/User Assign Peak Report

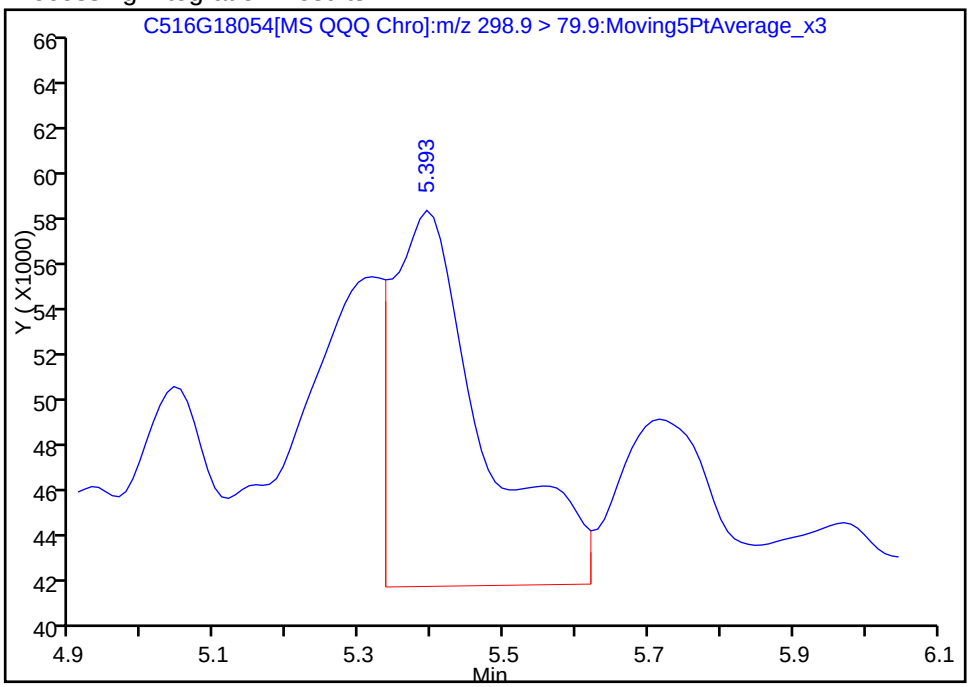
TestAmerica Denver

Data File:	\\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18054.d				
Injection Date:	18-Jul-2016 22:44:51	Instrument ID:	LC_LCMS5		
Lims ID:	280-85298-B-7-A	Lab Sample ID:	280-85298-7		
Client ID:	SWF-OF-003				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	49
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		
Column:		Detector	MS QQQ		

4 Perfluorobutane Sulfonate, CAS: 29420-43-3

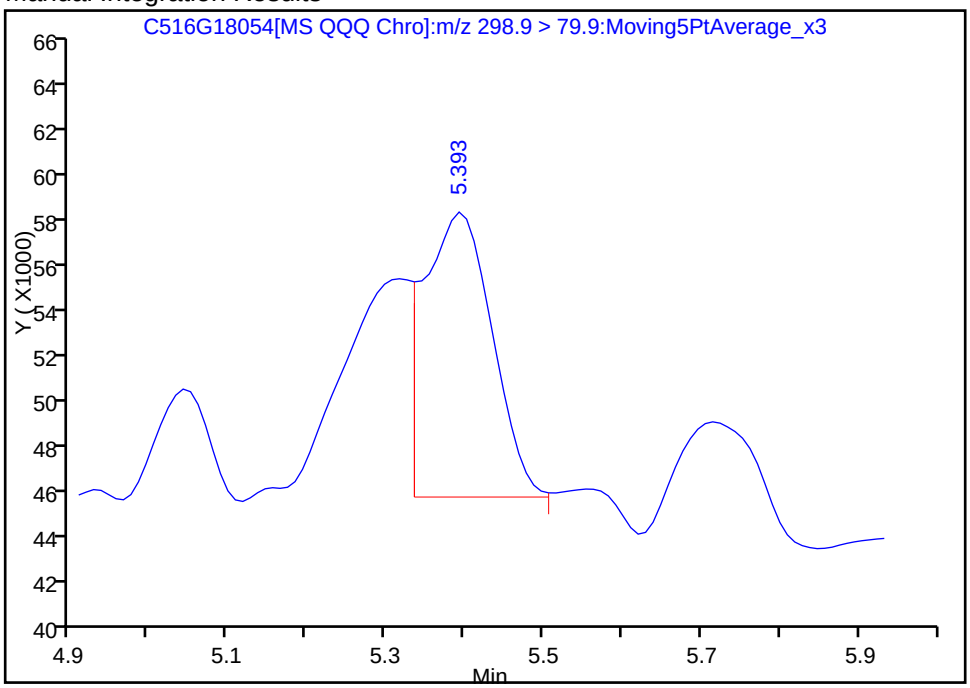
Processing Integration Results

RT: 5.39
Area: 136444
Amount: 0.107381
Amount Units: ug/L



Manual Integration Results

RT: 5.39
Area: 70848
Amount: 0.059677
Amount Units: ug/L



Reviewer: fiedlerh, 19-Jul-2016 14:27:15
Audit Action: Manually Integrated
Audit Reason: Baseline

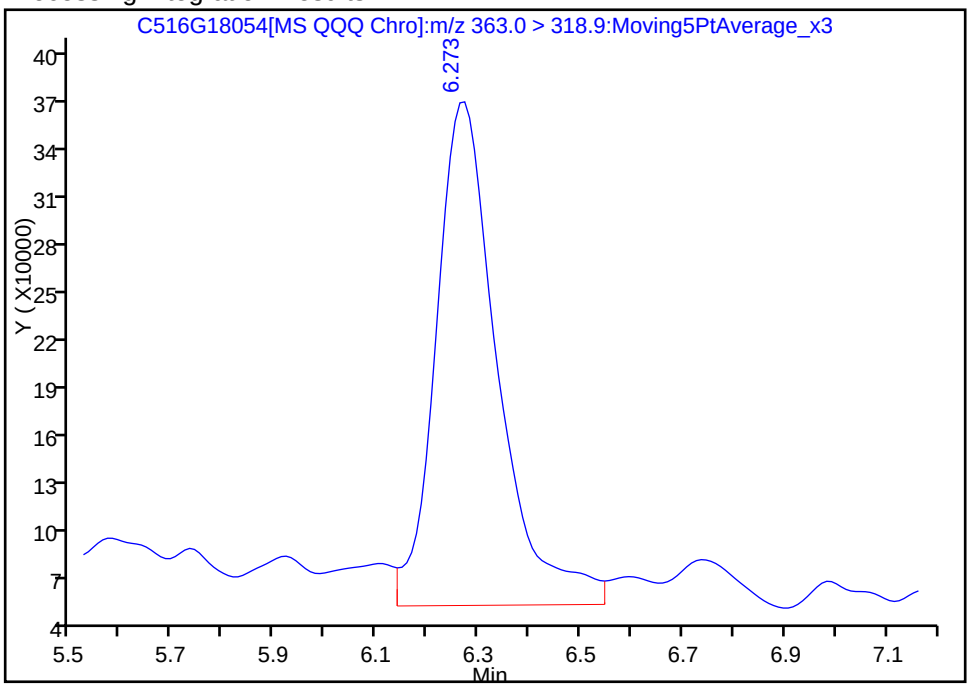
TestAmerica Denver

Data File:	\\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18054.d				
Injection Date:	18-Jul-2016 22:44:51	Instrument ID:	LC_LCMS5		
Lims ID:	280-85298-B-7-A	Lab Sample ID:	280-85298-7		
Client ID:	SWF-OF-003				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	49
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		
Column:		Detector	MS QQQ		

8 Perfluoroheptanoic acid, CAS: 375-85-9

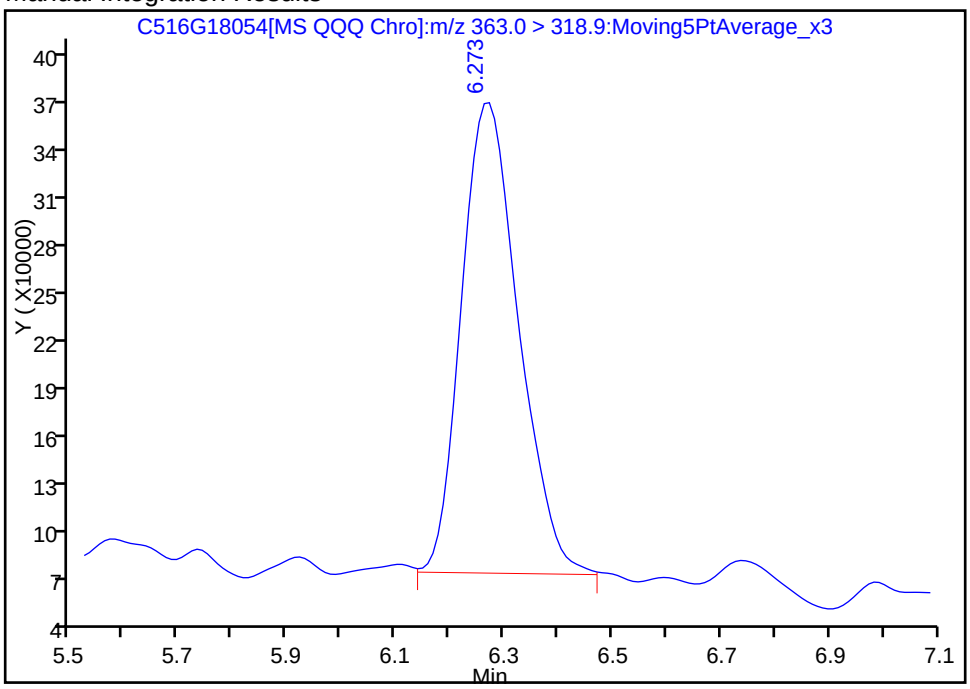
Processing Integration Results

RT: 6.27
Area: 2635549
Amount: 0.924306
Amount Units: ug/L



Manual Integration Results

RT: 6.27
Area: 2148660
Amount: 0.747374
Amount Units: ug/L



Reviewer: fiedlerh, 19-Jul-2016 14:27:15
Audit Action: Manually Integrated
Audit Reason: Baseline

Manual Integration/User Assign Peak Report

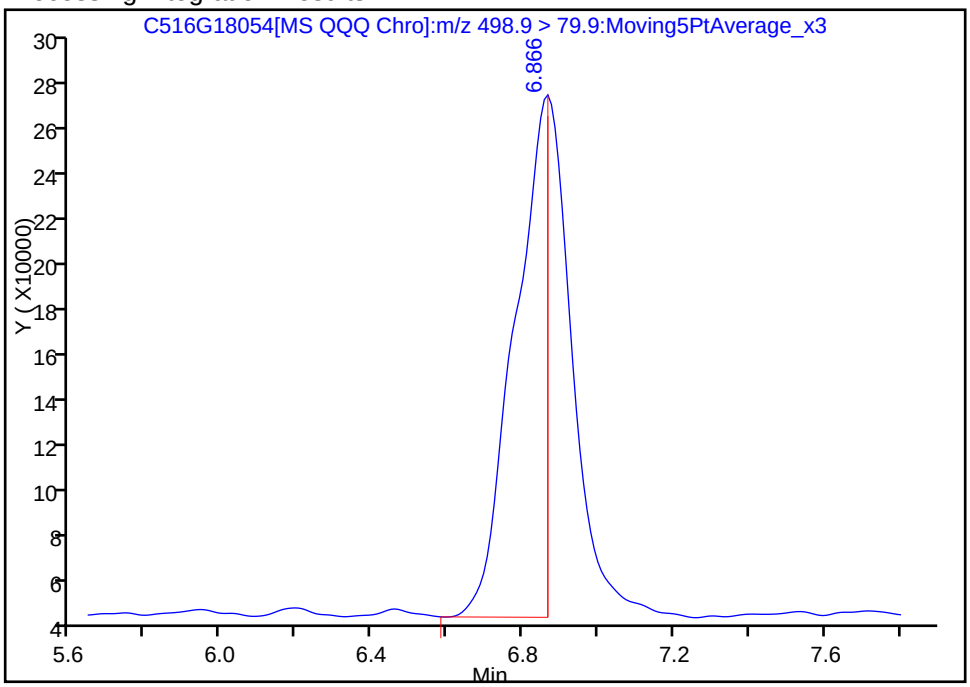
TestAmerica Denver

Data File:	\\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18054.d				
Injection Date:	18-Jul-2016 22:44:51	Instrument ID:	LC_LCMS5		
Lims ID:	280-85298-B-7-A	Lab Sample ID:	280-85298-7		
Client ID:	SWF-OF-003				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	49
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		
Column:		Detector	MS QQQ		

19 Perfluorooctane sulfonic acid, CAS: 1763-23-1

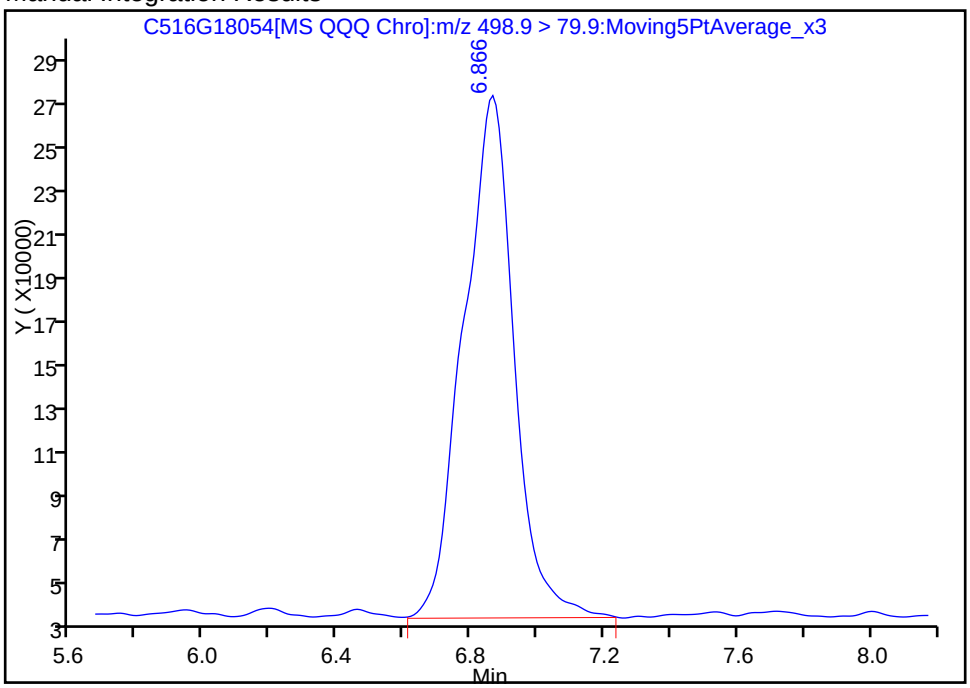
Processing Integration Results

RT: 6.87
Area: 1338277
Amount: 1.263634
Amount Units: ug/L



Manual Integration Results

RT: 6.87
Area: 2389063
Amount: 2.312560
Amount Units: ug/L



Reviewer: fiedlerh, 19-Jul-2016 14:27:15
Audit Action: Manually Integrated
Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: SWF-OF-003 RE | Lab Sample ID: 280-85298-7 RE

Matrix: Water | Lab File ID: PC516G28061.d

Analysis Method: DV-LC-0012 | Date Collected: 07/05/2016 13:25

Extraction Method: 3535 | Date Extracted: 07/25/2016 10:50

Sample wt/vol: 257.4(mL) | Date Analyzed: 07/28/2016 20:36

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 335652 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	*Perfluorobutane Sulfonate (PFBS)*	*0.0080*	*U H*	*0.019*	*0.0080*
375-85-9	*Perfluoroheptanoic acid (PFHpA)*	*0.018*	*J H*	*0.029*	*0.013*
108427-53-8	*Perfluorohexane Sulfonate (PFHxS)*	*0.025*	*J H*	*0.029*	*0.0068*
375-95-1	*Perfluorononanoic acid (PFNA)*	*0.017*	*U H*	*0.039*	*0.017*
1763-23-1	*Perfluorooctanesulfonic acid (PFOS)*	*0.067*	*H*	*0.029*	*0.013*
335-67-1	*Perfluorooctanoic acid (PFOA)*	*0.019*	*H*	*0.019*	*0.0095*

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	103		60-155
STL01054	13C8 PFOS	102		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28061.d
Lims ID: 280-85298-A-7-A Lab Sample ID: 280-85298-7
Client ID: SWF-OF-003
Sample Type: Client
Inject. Date: 28-Jul-2016 20:36:34 ALS Bottle#: 0 Worklist Smp#: 17
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85298-A-7-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 29-Jul-2016 10:37:26 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK010

First Level Reviewer: meyera Date: 29-Jul-2016 09:46:35

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	3.916	4.029	-0.113		20993650	10.0			
4 Perfluorobutane Sulfonate									R
298.9 > 79.9	5.203	5.241	-0.038	0.853	263151	0.2247			R
298.9 > 98.9	5.184	5.241	-0.057	0.850	41289		6.37(1.80-3.35)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.657	5.695	-0.038		16292681	10.0			
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.093	6.112	-0.019	0.946	2155793	0.9424			
363.0 > 168.9	6.093	6.112	-0.019	0.946	517117		4.17(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.102	6.120	-0.018		2198485	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.102	6.130	-0.028	1.000	1225430	1.29			R
398.9 > 98.9	6.102	6.130	-0.028	1.000	374664		3.27(1.30-2.41)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.442	6.470	-0.028	1.000	20791063	10.1			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.442	6.461	-0.019		25479984	10.0			
16 Perfluorooctanoic acid									R
413.0 > 368.9	6.442	6.461	-0.019	1.000	2788514	0.9864			R
413.0 > 169.0	6.442	6.461	-0.019	1.000	1082862		2.58(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.714	6.742	-0.028	1.000	4381974	9.45			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.714	6.743	-0.029		7251762	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.705	6.743	-0.038	0.999	3122612	3.47			R
498.9 > 98.9	6.715	6.743	-0.028	1.000	897302		3.48(1.31-2.43)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.725	6.753	-0.028		20292392	10.0			
20 Perfluorononanoic acid									R
463.0 > 418.9	6.734	6.753	-0.019	1.001	516099	0.1840			R
463.0 > 218.9	6.706	6.753	-0.047	0.997	40461		12.76(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	6.978	7.007	-0.029		17361958	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.186	7.215	-0.029		8472919	10.0			
* 28 13C2 PFDoA (IS)									s
614.9 > 569.9	7.365	7.393	-0.028		12229512	10.0			
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.529	7.557	-0.028		2095614	10.0			

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

s - Failed ISTD Recovery Test

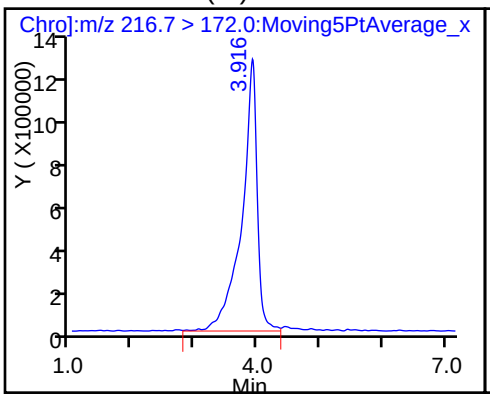
Report Date: 29-Jul-2016 10:37:37 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

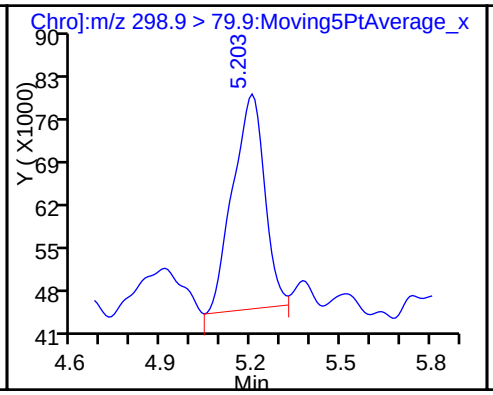
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28061.d

Injection Date:	28-Jul-2016 20:36:34	Instrument ID:	LC_LCMS5		
Lims ID:	280-85298-A-7-A	Lab Sample ID:	280-85298-7		
Client ID:	SWF-OF-003				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	17
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

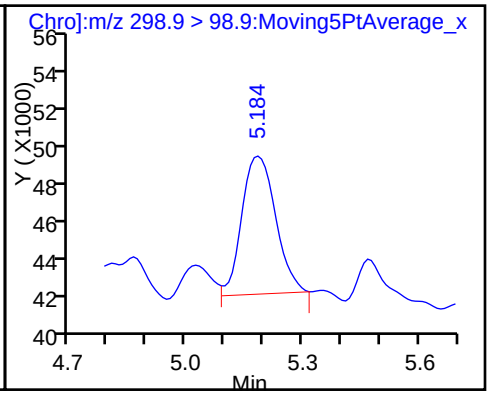
* 1 13C4 PFBA (IS)



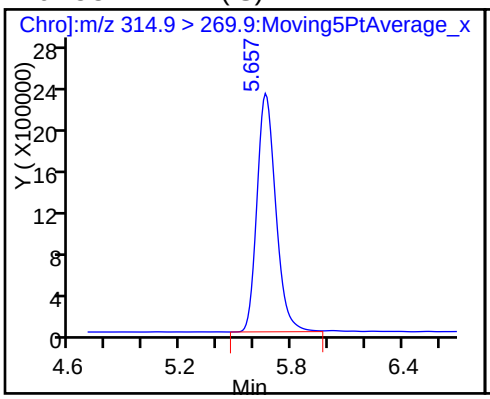
4 Perfluorobutane Sulfonate



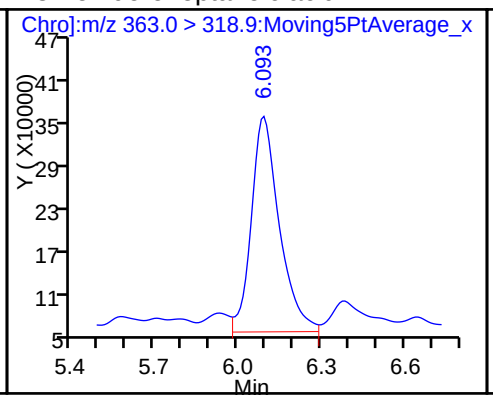
4 Perfluorobutane Sulfonate



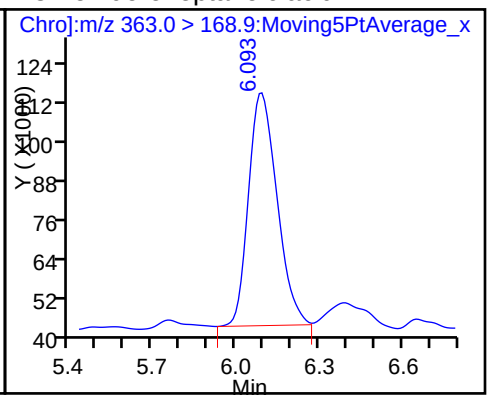
* 6 13C2 PFHxA (IS)



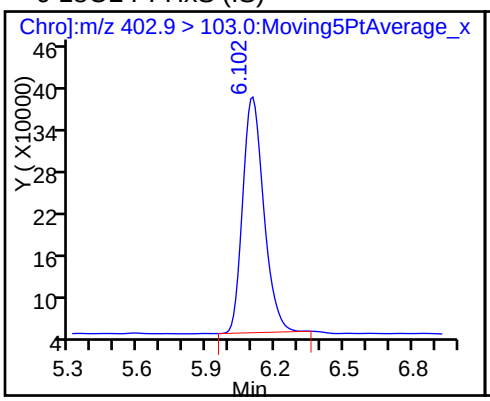
8 Perfluoroheptanoic acid



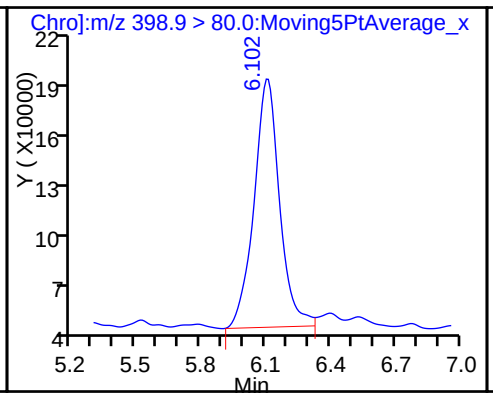
8 Perfluoroheptanoic acid



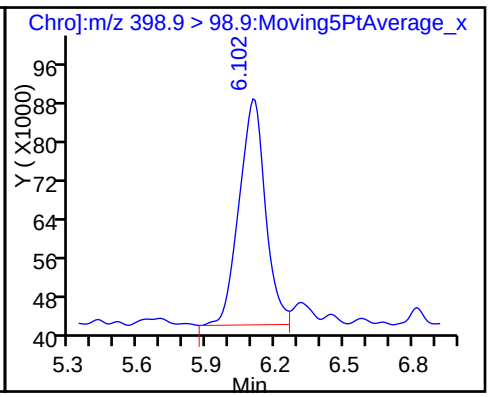
* 9 18O2 PFHxS (IS)



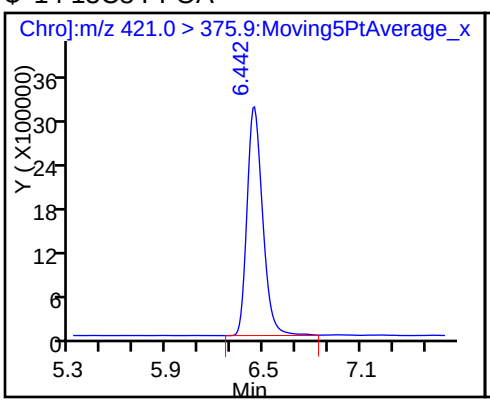
10 Perfluorohexane Sulfonate



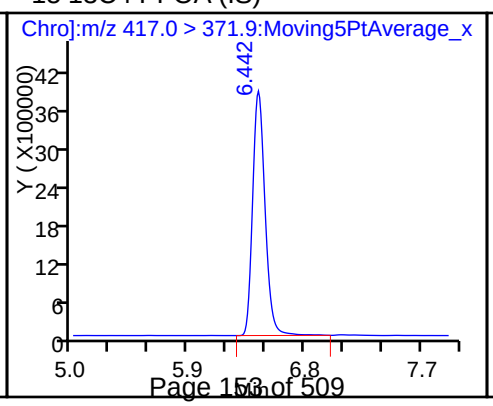
10 Perfluorohexane Sulfonate



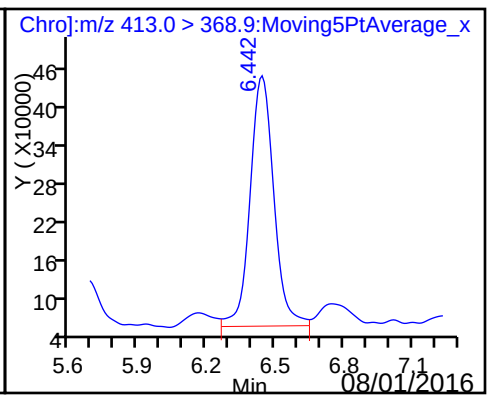
$ 14 13C8 PFOA



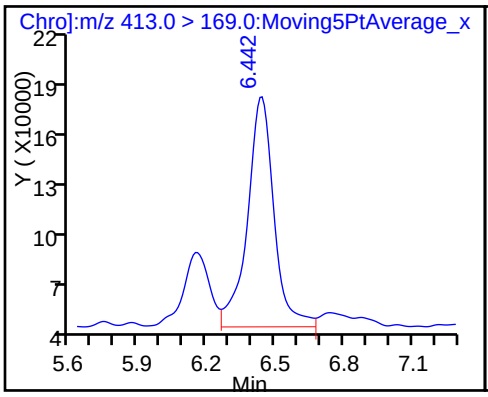
* 15 13C4 PFOA (IS)



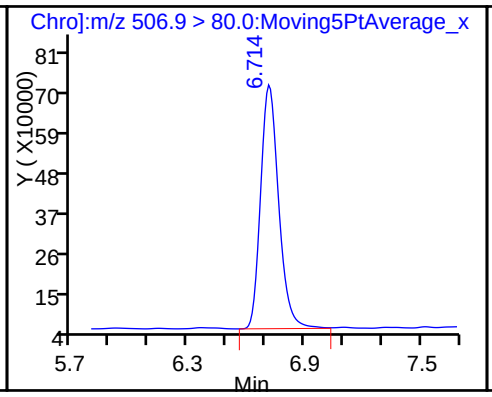
16 Perfluorooctanoic acid



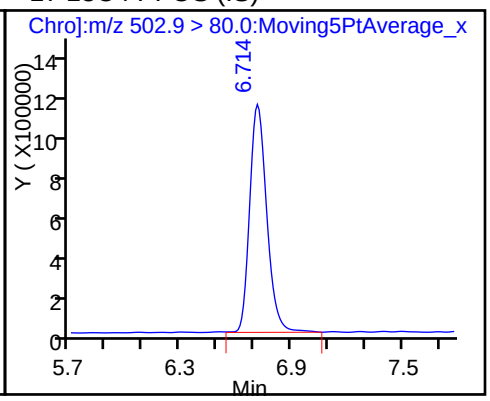
16 Perfluorooctanoic acid



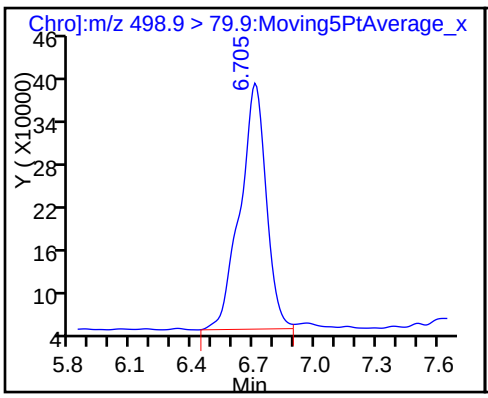
$ 18 13C8 PFOS



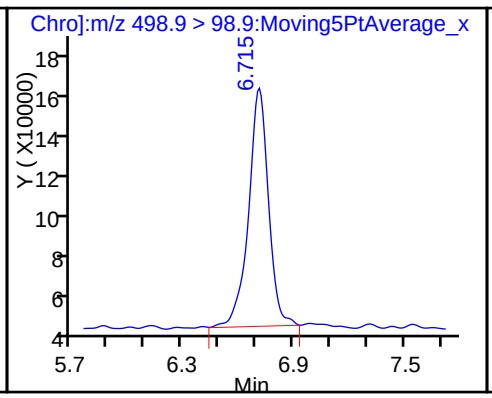
* 17 13C4 PFOS (IS)



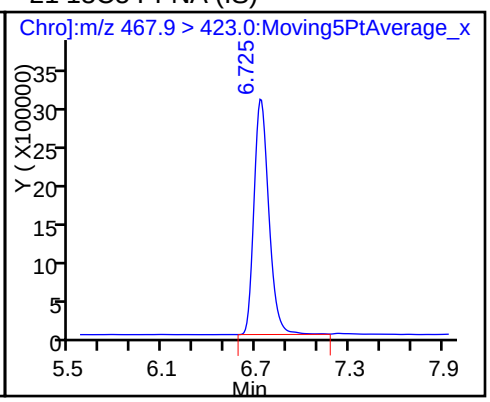
19 Perfluorooctane sulfonic acid



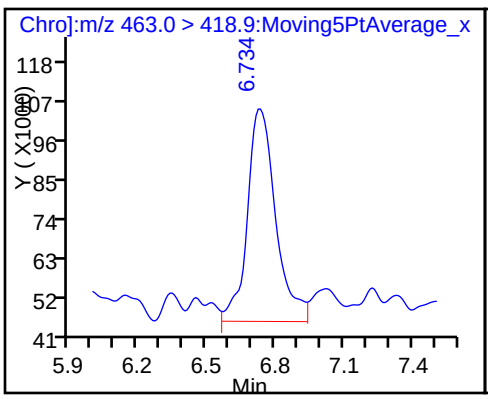
19 Perfluorooctane sulfonic acid



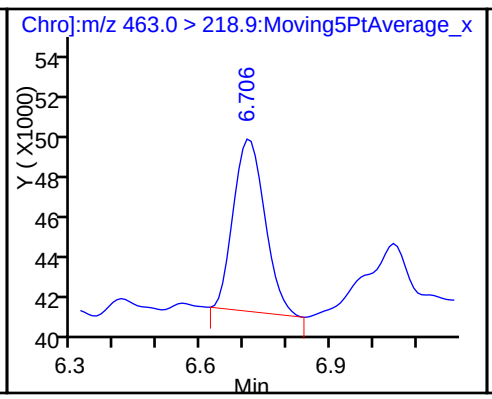
* 21 13C5 PFNA (IS)



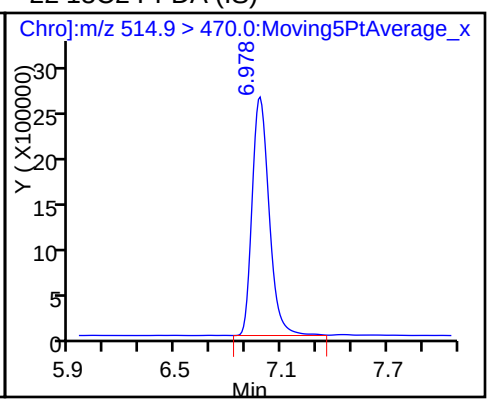
20 Perfluorononanoic acid



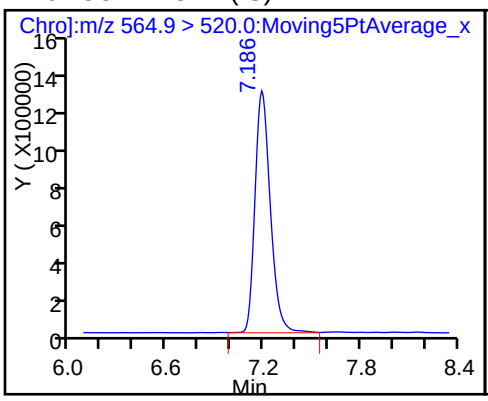
20 Perfluorononanoic acid



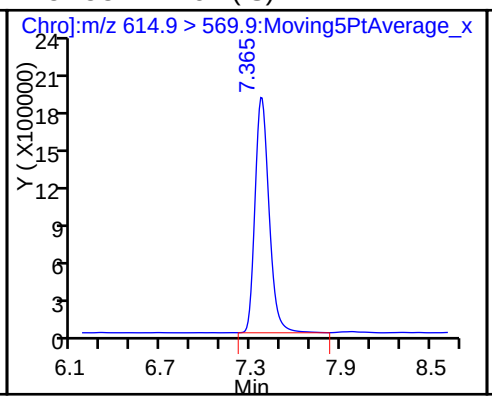
* 22 13C2 PFDA (IS)



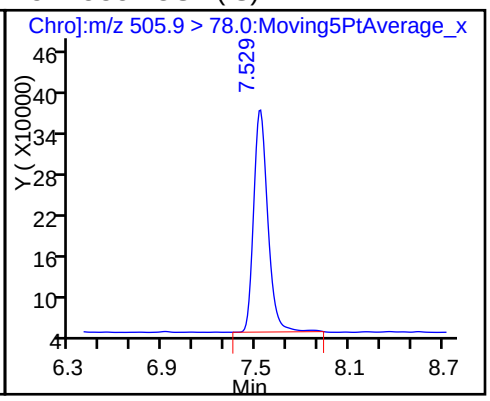
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: SWF-FB-6 | Lab Sample ID: 280-85298-8

Matrix: Water | Lab File ID: PC516G18055.d

Analysis Method: DV-LC-0012 | Date Collected: 07/05/2016 14:00

Extraction Method: 3535 | Date Extracted: 07/16/2016 07:25

Sample wt/vol: 249.1(mL) | Date Analyzed: 07/18/2016 22:57

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 334166 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.0083	U *	0.020	0.0083
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.013	U	0.030	0.013
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.0070	U	0.030	0.0070
375-95-1	Perfluorononanoic acid (PFNA)	0.017	U	0.040	0.017
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.013	U	0.030	0.013
335-67-1	Perfluorooctanoic acid (PFOA)	0.0098	U	0.020	0.0098

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	105		60-155
STL01054	13C8 PFOS	98		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18055.d
Lims ID: 280-85298-B-8-A Lab Sample ID: 280-85298-8
Client ID: SWF-FB-6
Sample Type: Client
Inject. Date: 18-Jul-2016 22:57:10 ALS Bottle#: 0 Worklist Smp#: 50
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85298-B-8-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 19-Jul-2016 15:53:35 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK035

First Level Reviewer: fiedlerh Date: 19-Jul-2016 14:27:36

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.153	4.276	-0.123		31869435	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.431				ND			
298.9 > 98.9		5.431							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.828	5.894	-0.066		19783776	10.0			
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.320				ND			
363.0 > 168.9		6.320							
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.272	6.329	-0.057		2357006	9.46			
10 Perfluorohexane Sulfonate									
398.9 > 80.0		6.320				ND			
398.9 > 98.9		6.320							
$ 14 13C8 PFOA									
421.0 > 375.9	6.603	6.660	-0.057	1.000	26120834	10.5			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.603	6.669	-0.066		30783456	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9		6.660				ND			
413.0 > 169.0		6.660							
$ 18 13C8 PFOS									
506.9 > 80.0	6.875	6.932	-0.057	1.000	5148783	9.36			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.875	6.932	-0.057		8604309	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9		6.932				ND			
498.9 > 98.9		6.932							

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.895	6.952	-0.057		24954807	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9		6.952				ND			
463.0 > 218.9		6.952							
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.140	7.196	-0.056		26483457	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.347	7.395	-0.048		17085087	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.526	7.573	-0.047		29236039	10.0			
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.671	7.728	-0.057		623189	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

s - Failed ISTD Recovery Test

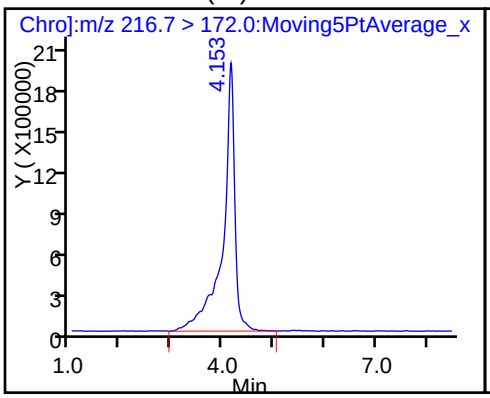
Report Date: 19-Jul-2016 15:53:57 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

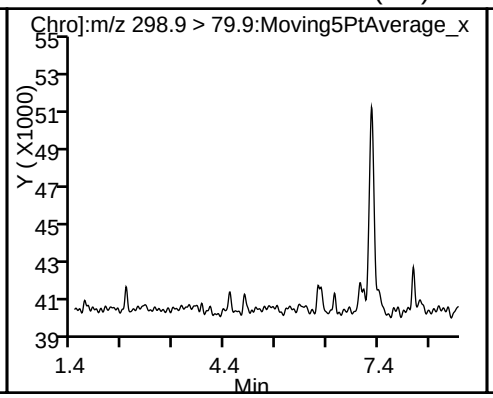
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18055.d

Injection Date:	18-Jul-2016 22:57:10	Instrument ID:	LC_LCMS5		
Lims ID:	280-85298-B-8-A	Lab Sample ID:	280-85298-8		
Client ID:	SWF-FB-6				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	50
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

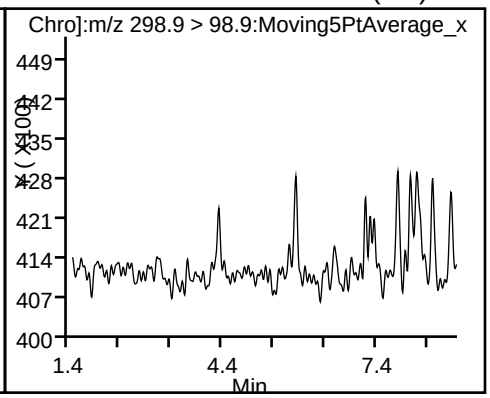
* 1 13C4 PFBA (IS)



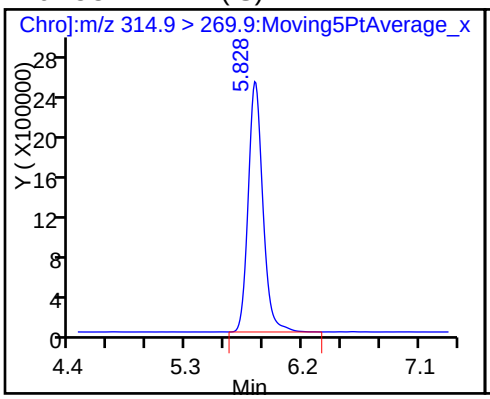
4 Perfluorobutane Sulfonate (ND)



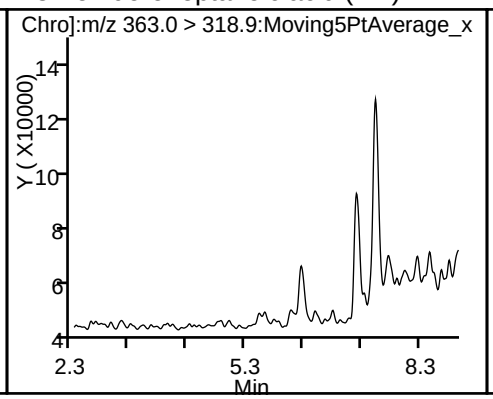
4 Perfluorobutane Sulfonate (ND)



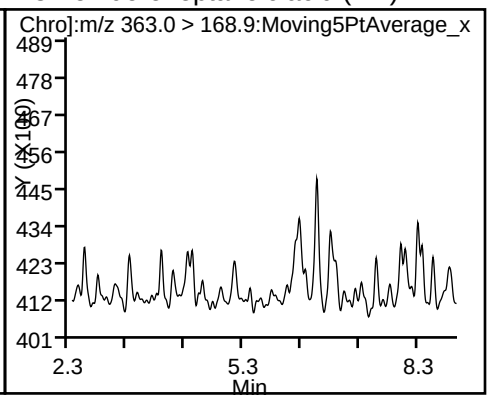
* 6 13C2 PFHxA (IS)



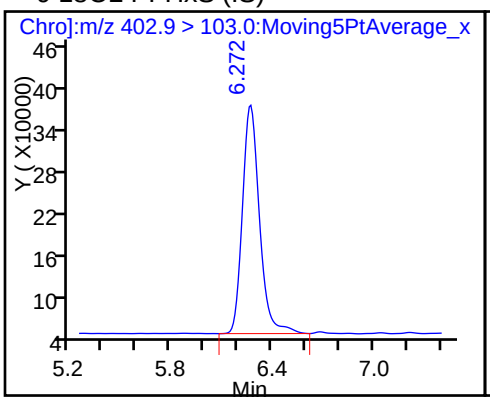
8 Perfluoroheptanoic acid (ND)



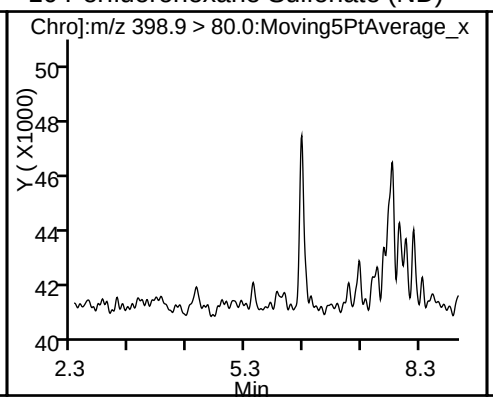
8 Perfluoroheptanoic acid (ND)



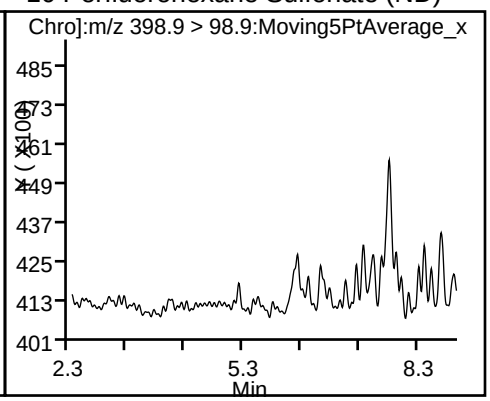
* 9 18O2 PFHxS (IS)



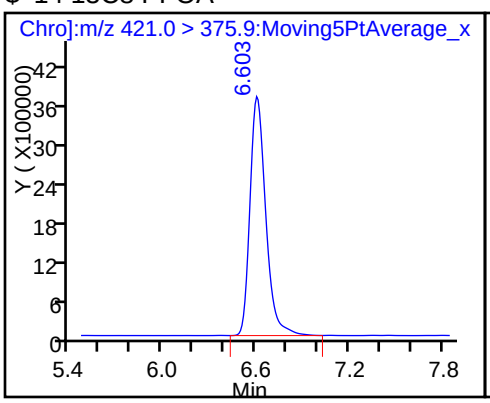
10 Perfluorohexane Sulfonate (ND)



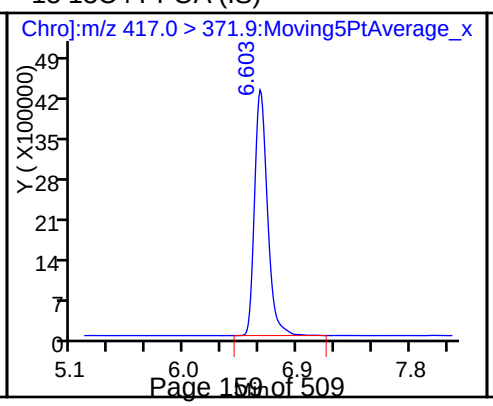
10 Perfluorohexane Sulfonate (ND)



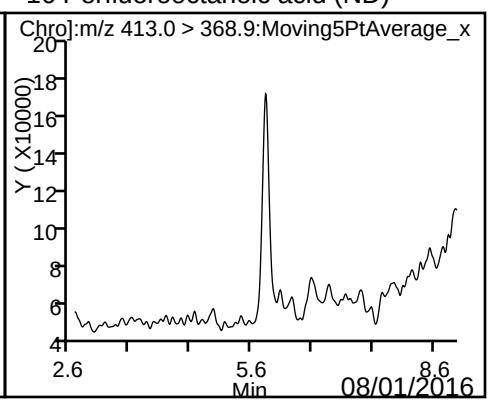
$ 14 13C8 PFOA



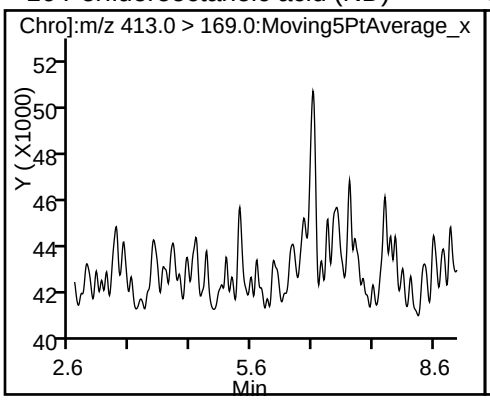
* 15 13C4 PFOA (IS)



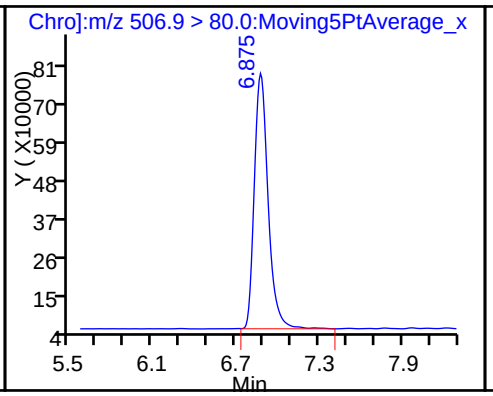
16 Perfluorooctanoic acid (ND)



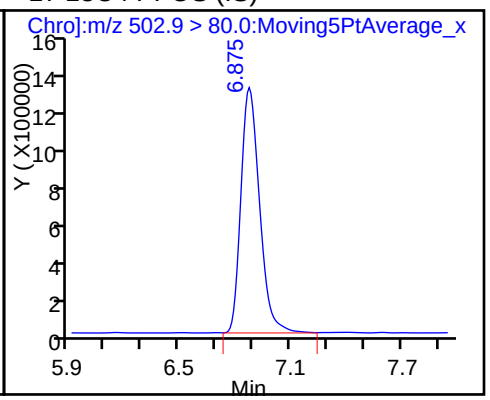
16 Perfluorooctanoic acid (ND)



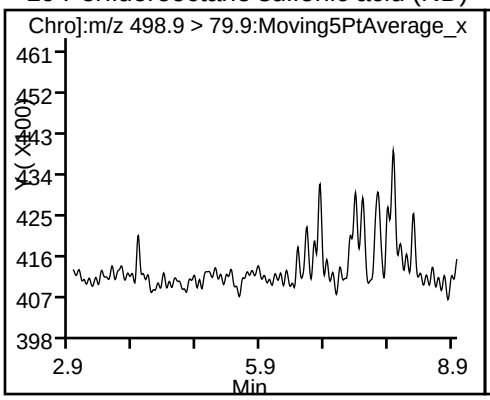
$ 18 13C8 PFOS



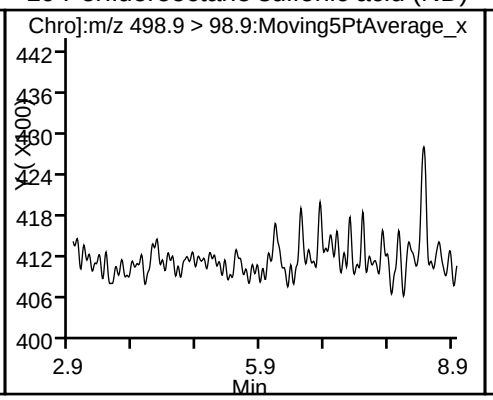
* 17 13C4 PFOS (IS)



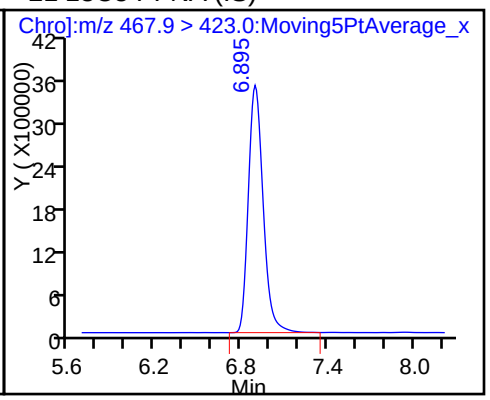
19 Perfluorooctane sulfonic acid (ND)



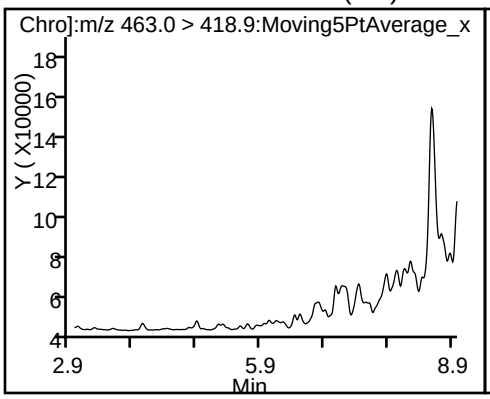
19 Perfluorooctane sulfonic acid (ND)



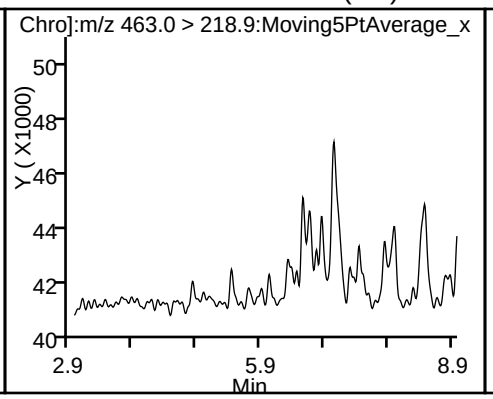
* 21 13C5 PFNA (IS)



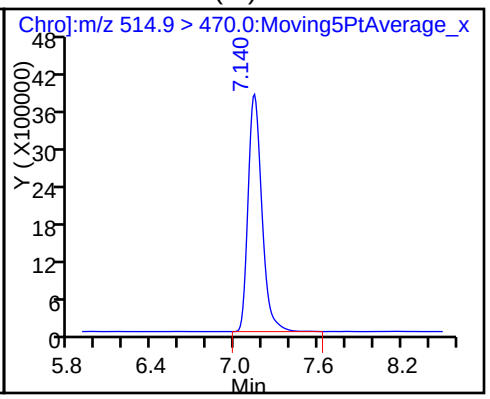
20 Perfluorononanoic acid (ND)



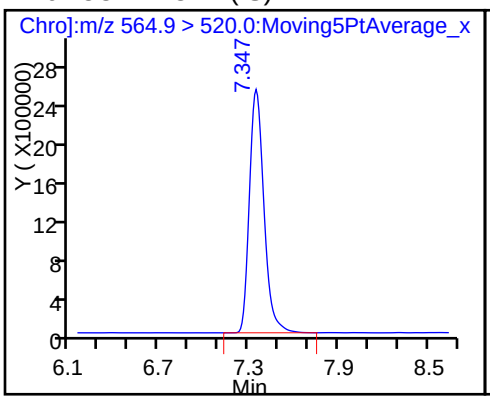
20 Perfluorononanoic acid (ND)



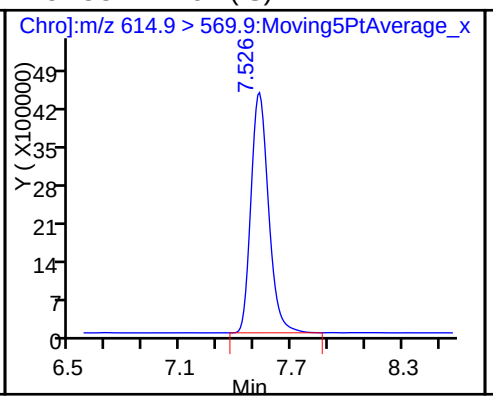
* 22 13C2 PFDA (IS)



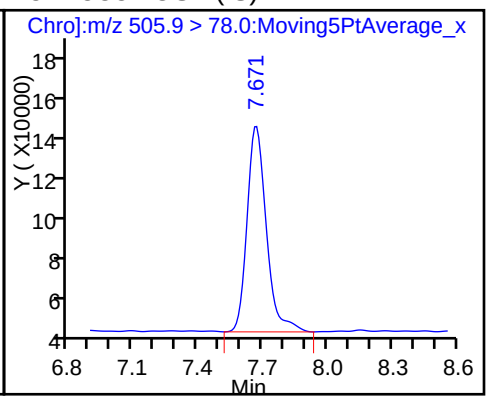
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: SWF-FB-6 RE | Lab Sample ID: 280-85298-8 RE

Matrix: Water | Lab File ID: PC516G28062.d

Analysis Method: DV-LC-0012 | Date Collected: 07/05/2016 14:00

Extraction Method: 3535 | Date Extracted: 07/25/2016 10:50

Sample wt/vol: 270.5(mL) | Date Analyzed: 07/28/2016 20:48

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 335652 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	*Perfluorobutane Sulfonate (PFBS)*	*0.0076*	*U H*	*0.018*	*0.0076*
375-85-9	*Perfluoroheptanoic acid (PFHpA)*	*0.012*	*U H*	*0.028*	*0.012*
108427-53-8	*Perfluorohexane Sulfonate (PFHxS)*	*0.0064*	*U H*	*0.028*	*0.0064*
375-95-1	*Perfluorononanoic acid (PFNA)*	*0.016*	*U H*	*0.037*	*0.016*
1763-23-1	*Perfluorooctanesulfonic acid (PFOS)*	*0.012*	*U H*	*0.028*	*0.012*
335-67-1	*Perfluorooctanoic acid (PFOA)*	*0.0090*	*U H*	*0.018*	*0.0090*

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	104		60-155
STL01054	13C8 PFOS	101		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28062.d
Lims ID: 280-85298-A-8-A Lab Sample ID: 280-85298-8
Client ID: SWF-FB-6
Sample Type: Client
Inject. Date: 28-Jul-2016 20:48:55 ALS Bottle#: 0 Worklist Smp#: 18
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85298-A-8-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 29-Jul-2016 15:55:53 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK003

First Level Reviewer: meyera Date: 29-Jul-2016 09:48:15

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.048	4.134	-0.086		22041687	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.327				ND			
298.9 > 98.9		5.327							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.676	5.800	-0.124		15955104	10.0			
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.244				ND			
363.0 > 168.9		6.244							
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.111	6.253	-0.142		2104248	9.46			
10 Perfluorohexane Sulfonate									
398.9 > 80.0		6.253				ND			
398.9 > 98.9		6.253							
$ 14 13C8 PFOA									
421.0 > 375.9	6.451	6.612	-0.161	1.001	20716222	10.2			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.442	6.612	-0.170		25043249	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9		6.603				ND			
413.0 > 169.0		6.603							
$ 18 13C8 PFOS									
506.9 > 80.0	6.723	6.884	-0.161	1.001	4895657	9.38			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.714	6.885	-0.171		8163465	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9		6.885				ND			
498.9 > 98.9		6.885							

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.734	6.905	-0.171		20607330	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9		6.905				ND			
463.0 > 218.9		6.905							
* 22 13C2 PFDA (IS)									
514.9 > 470.0	6.988	7.149	-0.161		20795146	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.205	7.347	-0.142		13701821	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.384	7.526	-0.142		24410474	10.0			
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.557	7.642	-0.085		702120	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

s - Failed ISTD Recovery Test

Report Date: 29-Jul-2016 15:56:22 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28062.d

Injection Date: 28-Jul-2016 20:48:55 Instrument ID: LC_LCMS5

Lims ID: 280-85298-A-8-A Lab Sample ID: 280-85298-8

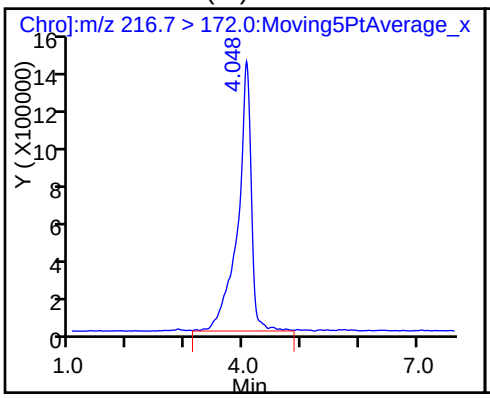
Client ID: SWF-FB-6

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 18

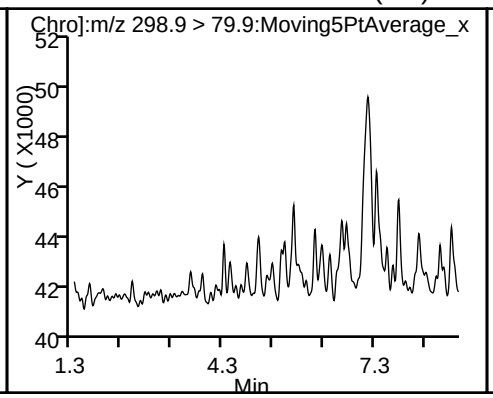
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

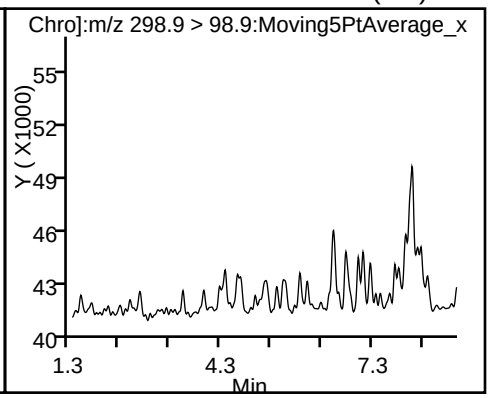
* 1 13C4 PFBA (IS)



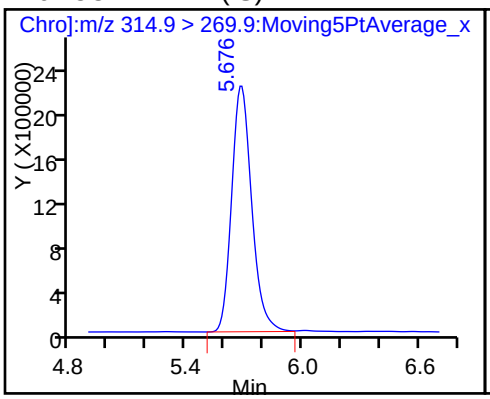
4 Perfluorobutane Sulfonate (ND)



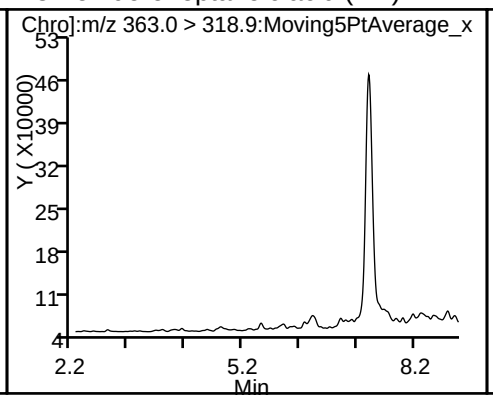
4 Perfluorobutane Sulfonate (ND)



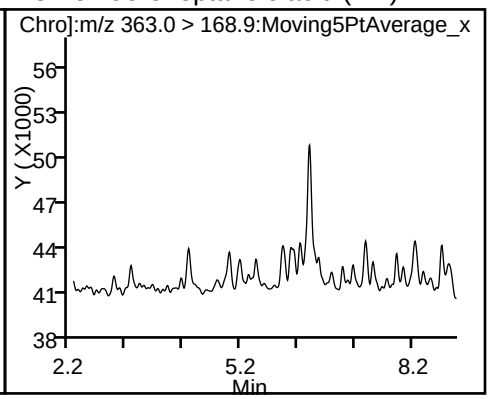
* 6 13C2 PFHxA (IS)



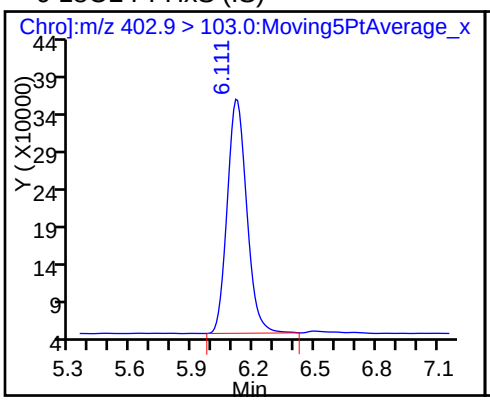
8 Perfluoroheptanoic acid (ND)



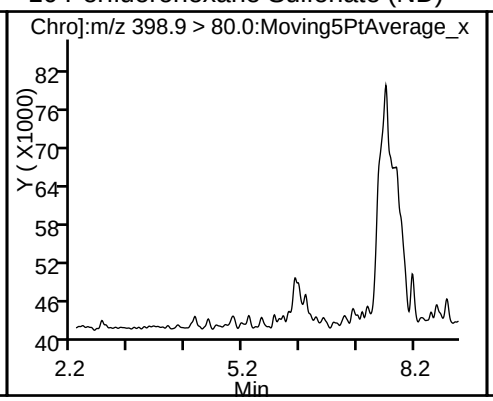
8 Perfluoroheptanoic acid (ND)



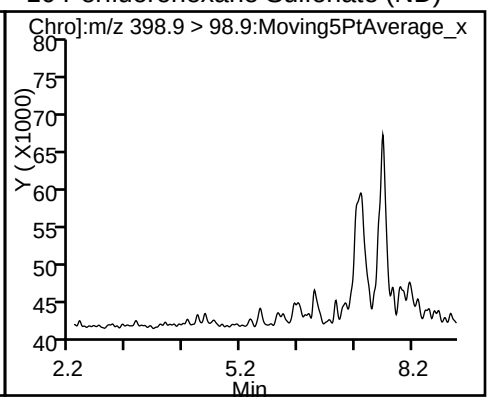
* 9 18O2 PFHxS (IS)



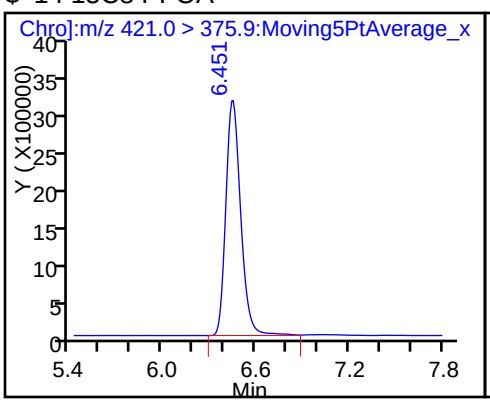
10 Perfluorohexane Sulfonate (ND)



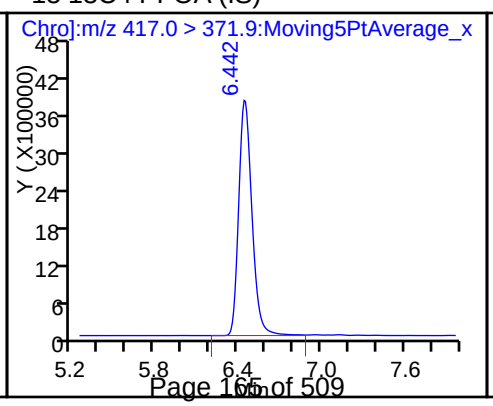
10 Perfluorohexane Sulfonate (ND)



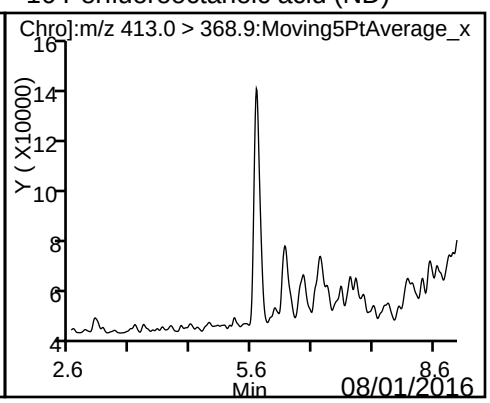
$ 14 13C8 PFOA



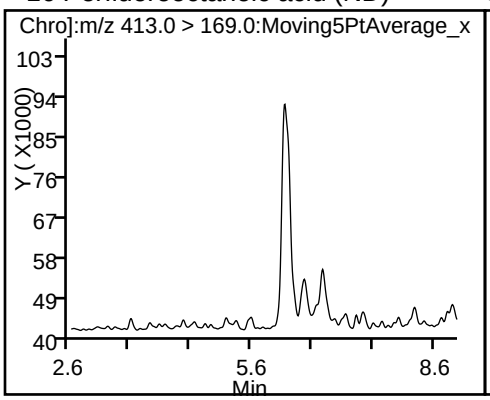
* 15 13C4 PFOA (IS)



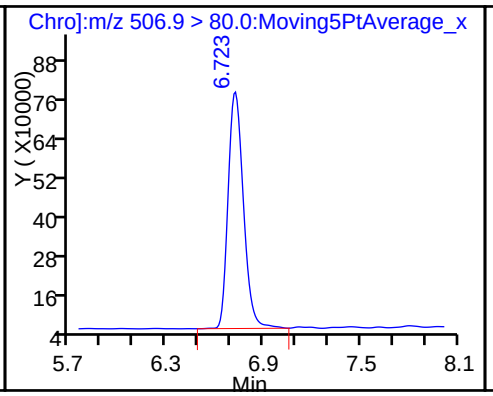
16 Perfluorooctanoic acid (ND)



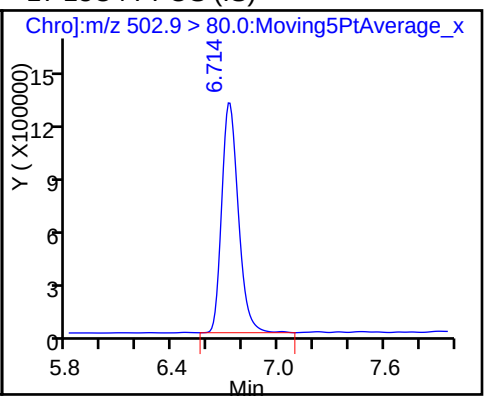
16 Perfluorooctanoic acid (ND)



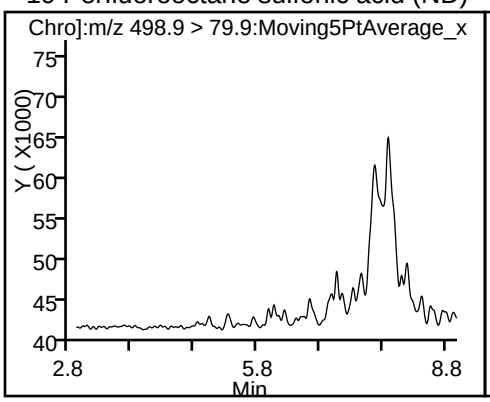
$ 18 13C8 PFOS



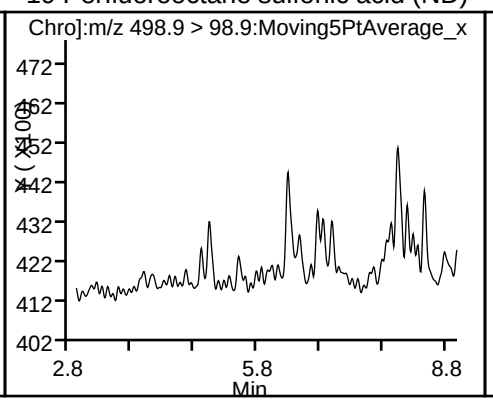
* 17 13C4 PFOS (IS)



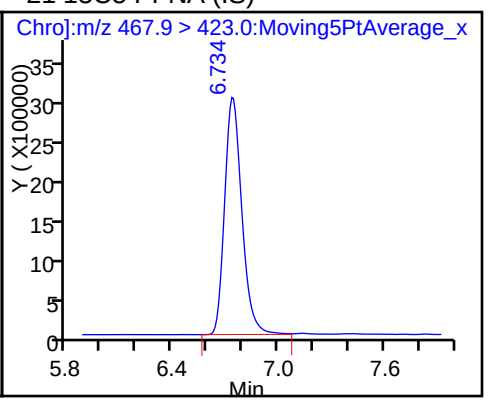
19 Perfluorooctane sulfonic acid (ND)



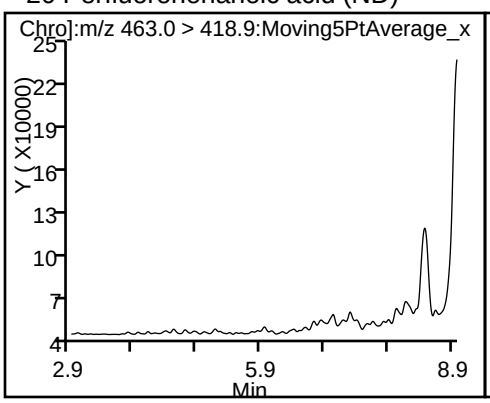
19 Perfluorooctane sulfonic acid (ND)



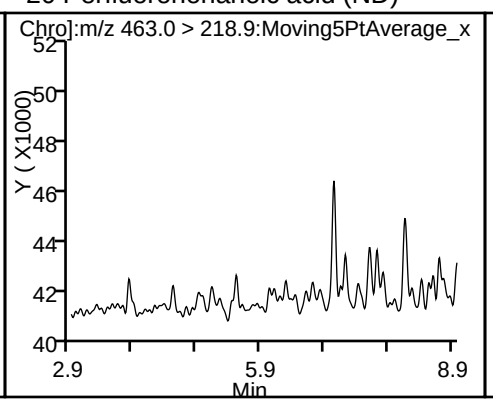
* 21 13C5 PFNA (IS)



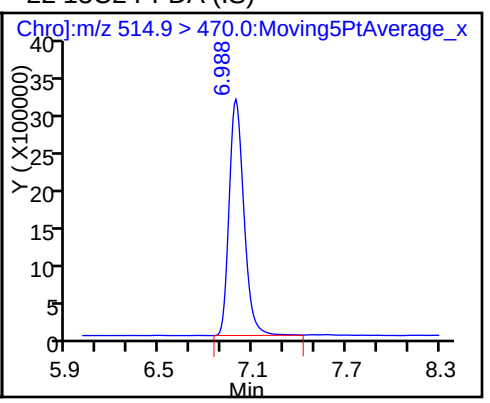
20 Perfluorononanoic acid (ND)



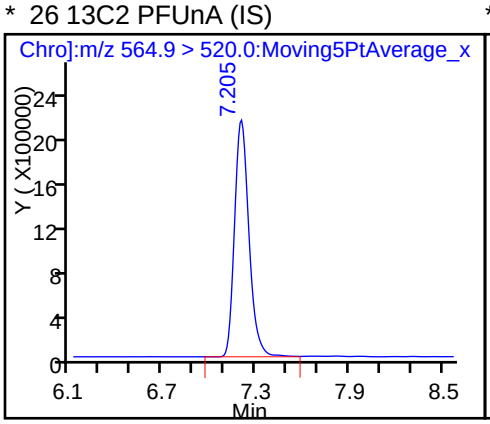
20 Perfluorononanoic acid (ND)



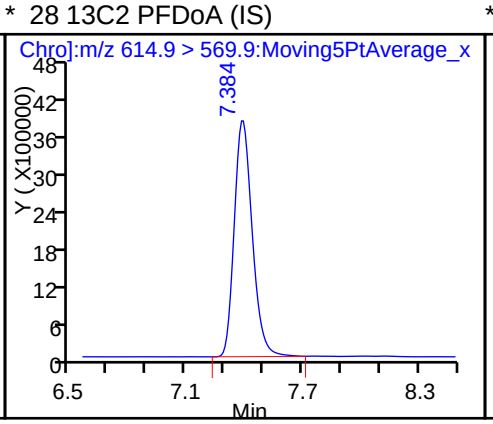
* 22 13C2 PFDA (IS)



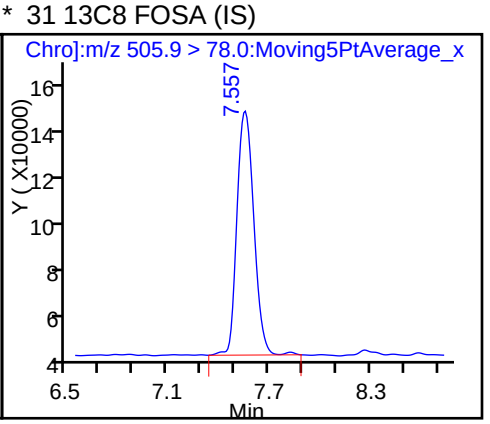
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: SWF-WB-3 | Lab Sample ID: 280-85298-9

Matrix: Water | Lab File ID: PC516G18056.d

Analysis Method: DV-LC-0012 | Date Collected: 07/05/2016 14:30

Extraction Method: 3535 | Date Extracted: 07/16/2016 07:25

Sample wt/vol: 248.3(mL) | Date Analyzed: 07/18/2016 23:09

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 334166 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.0083	U *	0.020	0.0083
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.013	U	0.030	0.013
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.0070	U	0.030	0.0070
375-95-1	Perfluorononanoic acid (PFNA)	0.018	U	0.040	0.018
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.013	U	0.030	0.013
335-67-1	Perfluorooctanoic acid (PFOA)	0.0099	U	0.020	0.0099

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	100		60-155
STL01054	13C8 PFOS	100		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18056.d
Lims ID: 280-85298-B-9-A Lab Sample ID: 280-85298-9
Client ID: SWF-WB-3
Sample Type: Client
Inject. Date: 18-Jul-2016 23:09:29 ALS Bottle#: 0 Worklist Smp#: 51
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85298-B-9-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 19-Jul-2016 15:53:35 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK035

First Level Reviewer: fiedlerh Date: 19-Jul-2016 14:27:51

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.143	4.276	-0.133		34023190	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.431				ND			
298.9 > 98.9		5.431							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.818	5.894	-0.076		20228164	10.0			
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.254	6.320	-0.066	0.948	423099	0.1186			
363.0 > 168.9	6.254	6.320	-0.066	0.948	107533		3.93(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.253	6.329	-0.076		2557043	9.46			
10 Perfluorohexane Sulfonate									
398.9 > 80.0		6.320				ND			
398.9 > 98.9		6.320							
$ 14 13C8 PFOA									
421.0 > 375.9	6.593	6.660	-0.067	1.000	25986685	10.0			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.593	6.669	-0.076		32105403	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9		6.660				ND			
413.0 > 169.0		6.660							
$ 18 13C8 PFOS									
506.9 > 80.0	6.865	6.932	-0.067	1.000	5205226	9.51			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.866	6.932	-0.066		8555297	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9		6.932				ND			
498.9 > 98.9		6.932							

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.886	6.952	-0.066		26019556	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9		6.952				ND			
463.0 > 218.9		6.952							
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.121	7.196	-0.075		24674377	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.338	7.395	-0.057		12805294	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.517	7.573	-0.056		24134502	10.0			
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.652	7.728	-0.076		601385	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

s - Failed ISTD Recovery Test

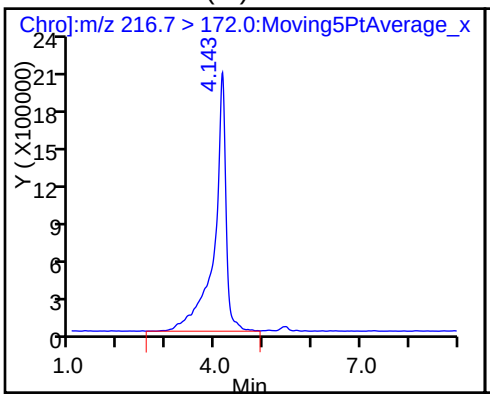
Report Date: 19-Jul-2016 15:53:59 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

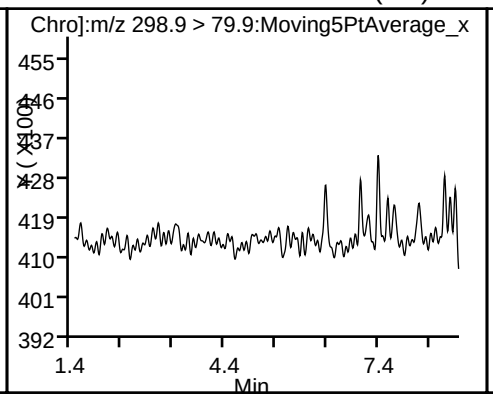
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18056.d

Injection Date:	18-Jul-2016 23:09:29	Instrument ID:	LC_LCMS5		
Lims ID:	280-85298-B-9-A	Lab Sample ID:	280-85298-9		
Client ID:	SWF-WB-3				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	51
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

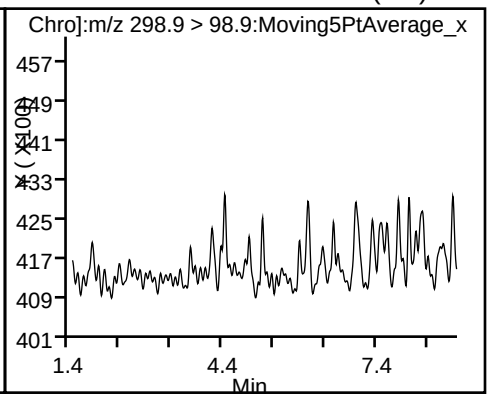
* 1 13C4 PFBA (IS)



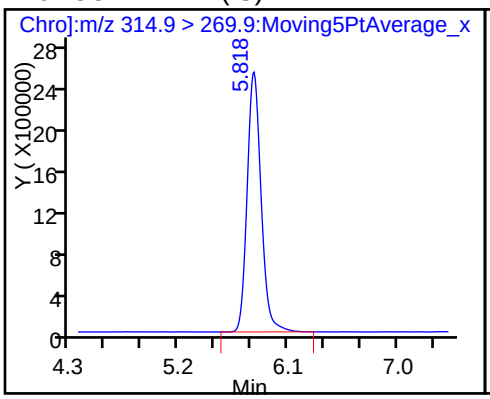
4 Perfluorobutane Sulfonate (ND)



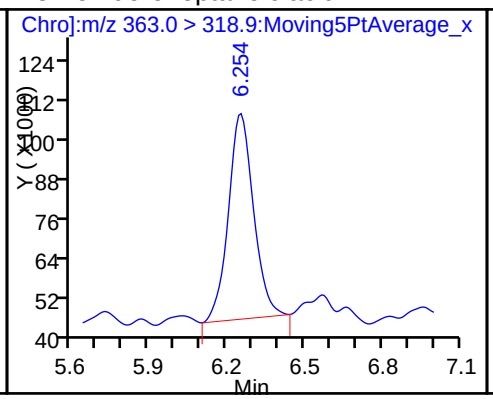
4 Perfluorobutane Sulfonate (ND)



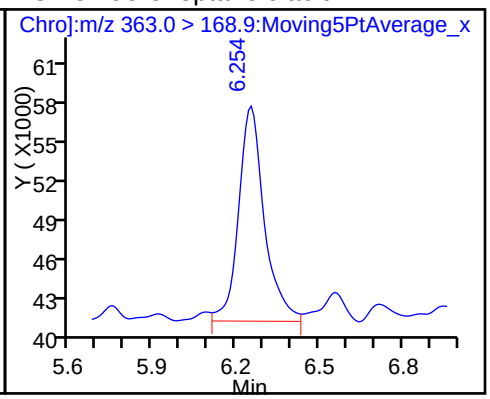
* 6 13C2 PFHxA (IS)



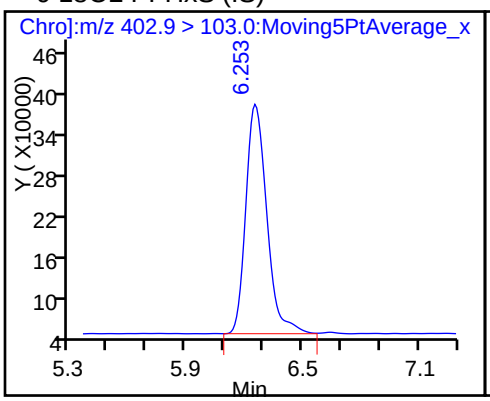
8 Perfluoroheptanoic acid



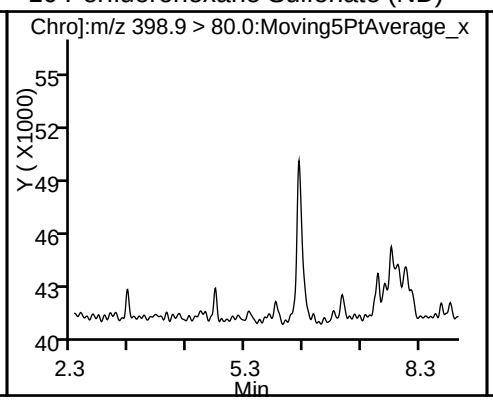
8 Perfluoroheptanoic acid



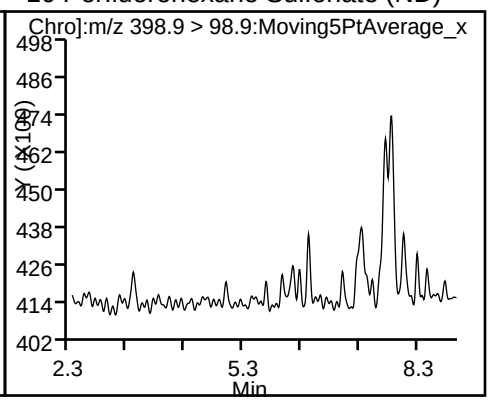
* 9 18O2 PFHxS (IS)



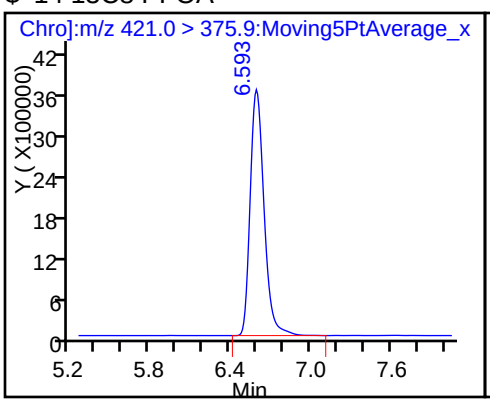
10 Perfluorohexane Sulfonate (ND)



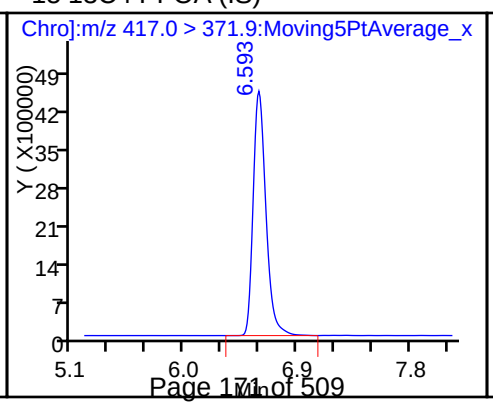
10 Perfluorohexane Sulfonate (ND)



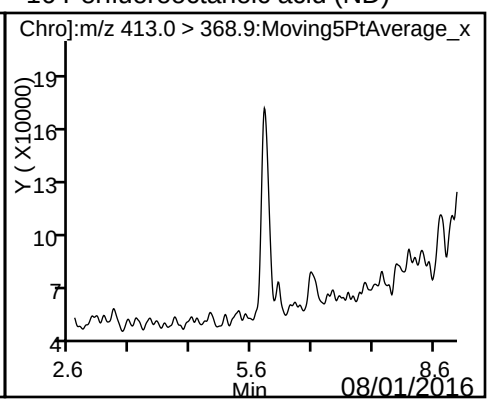
$ 14 13C8 PFOA



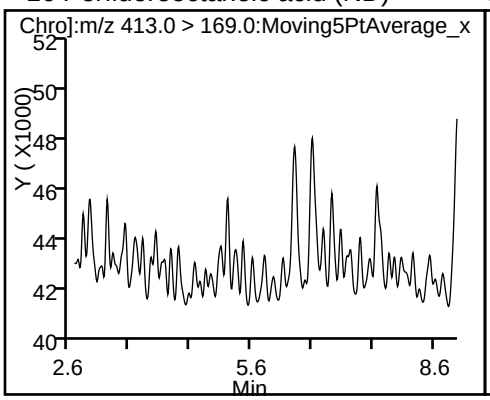
* 15 13C4 PFOA (IS)



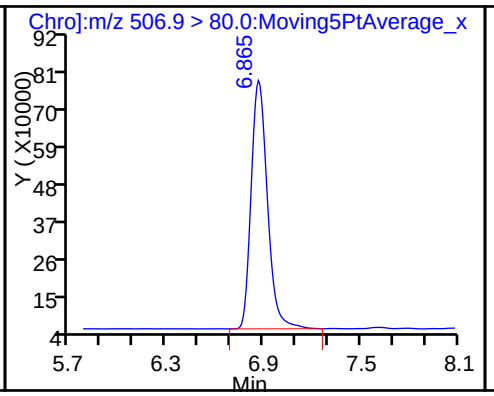
16 Perfluorooctanoic acid (ND)



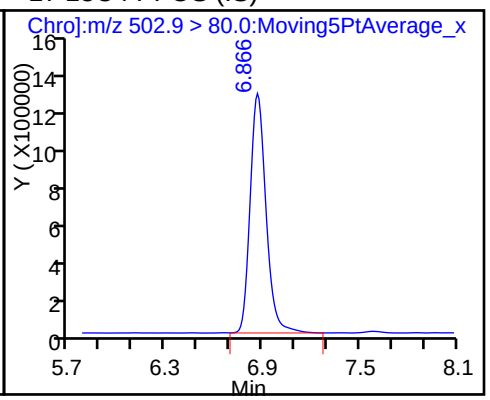
16 Perfluorooctanoic acid (ND)



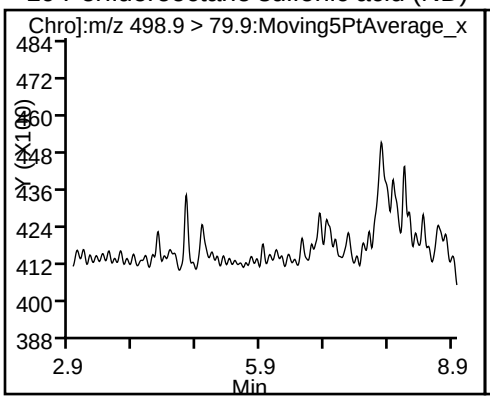
$ 18 13C8 PFOS



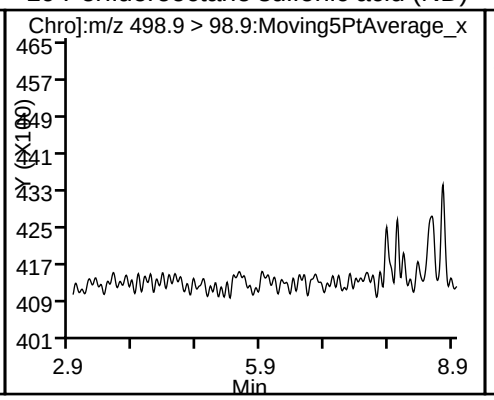
* 17 13C4 PFOS (IS)



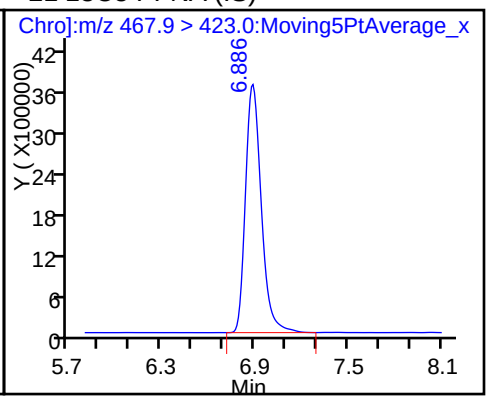
19 Perfluorooctane sulfonic acid (ND)



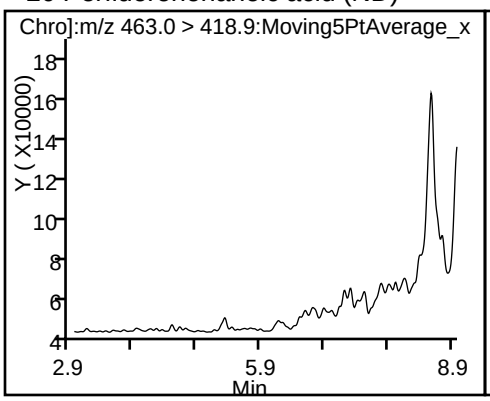
19 Perfluorooctane sulfonic acid (ND)



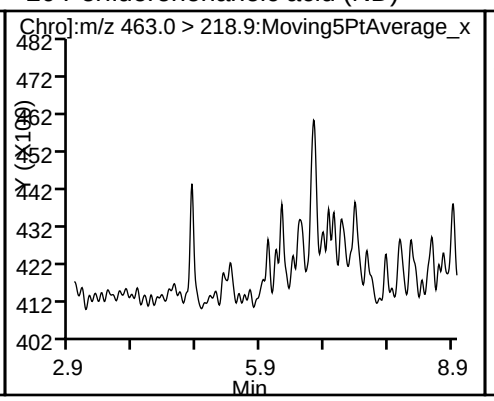
* 21 13C5 PFNA (IS)



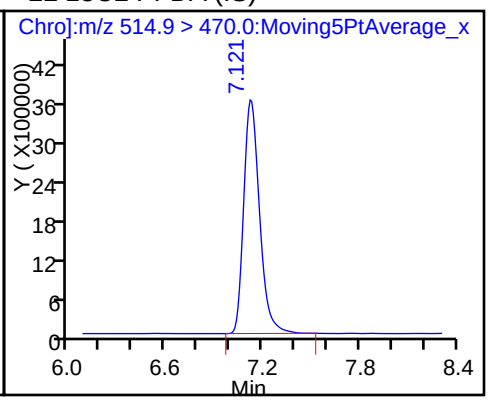
20 Perfluorononanoic acid (ND)



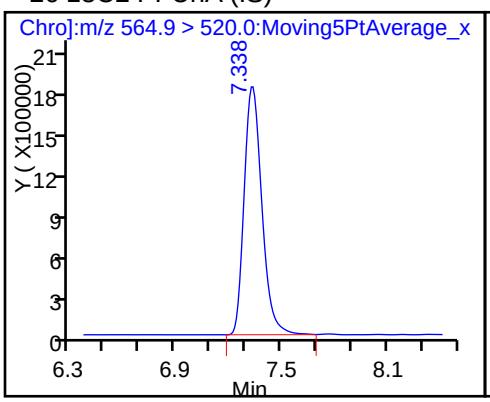
20 Perfluorononanoic acid (ND)



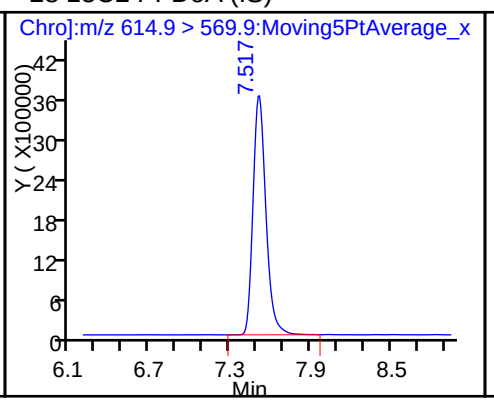
* 22 13C2 PFDA (IS)



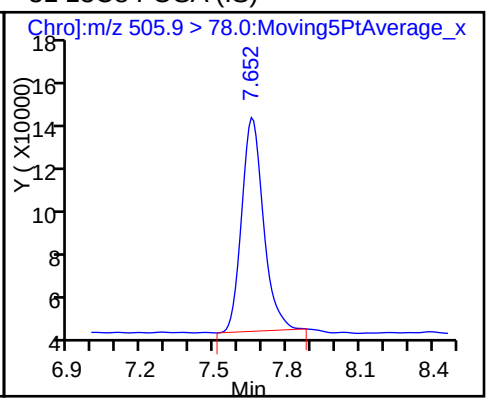
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: SWF-WB-3 RE | Lab Sample ID: 280-85298-9 RE

Matrix: Water | Lab File ID: PC516G28063.d

Analysis Method: DV-LC-0012 | Date Collected: 07/05/2016 14:30

Extraction Method: 3535 | Date Extracted: 07/25/2016 10:50

Sample wt/vol: 272.5(mL) | Date Analyzed: 07/28/2016 21:01

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 335652 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	*Perfluorobutane Sulfonate (PFBS)*	*0.0076*	*U H*	*0.018*	*0.0076*
375-85-9	*Perfluoroheptanoic acid (PFHpA)*	*0.012*	*U H*	*0.028*	*0.012*
108427-53-8	*Perfluorohexane Sulfonate (PFHxS)*	*0.0064*	*U H*	*0.028*	*0.0064*
375-95-1	*Perfluorononanoic acid (PFNA)*	*0.016*	*U H*	*0.037*	*0.016*
1763-23-1	*Perfluorooctanesulfonic acid (PFOS)*	*0.012*	*U H*	*0.028*	*0.012*
335-67-1	*Perfluorooctanoic acid (PFOA)*	*0.0090*	*U H*	*0.018*	*0.0090*

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	100		60-155
STL01054	13C8 PFOS	103		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28063.d
Lims ID: 280-85298-A-9-A Lab Sample ID: 280-85298-9
Client ID: SWF-WB-3
Sample Type: Client
Inject. Date: 28-Jul-2016 21:01:13 ALS Bottle#: 0 Worklist Smp#: 19
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85298-A-9-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 29-Jul-2016 15:56:33 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK003

First Level Reviewer: meyera Date: 29-Jul-2016 09:48:52

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	3.925	4.134	-0.209		22207332	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.327				ND			
298.9 > 98.9		5.327							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.657	5.800	-0.143		16459021	10.0			
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.244				ND			
363.0 > 168.9		6.244							
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.102	6.253	-0.151		2009518	9.46			
10 Perfluorohexane Sulfonate									
398.9 > 80.0		6.253				ND			
398.9 > 98.9		6.253							
16 Perfluorooctanoic acid									
413.0 > 368.9		6.603				ND			
413.0 > 169.0		6.603							
$ 14 13C8 PFOA									
421.0 > 375.9	6.442	6.612	-0.170	1.000	20686610	9.84			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.442	6.612	-0.170		26007413	10.0			
$ 18 13C8 PFOS									
506.9 > 80.0	6.714	6.884	-0.170	1.000	4917512	9.56			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.714	6.885	-0.171		8040122	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9		6.885				ND			
498.9 > 98.9		6.885							

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.725	6.905	-0.180		20923635	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9		6.905				ND			
463.0 > 218.9		6.905							
* 22 13C2 PFDA (IS)									
514.9 > 470.0	6.978	7.149	-0.171		20056567	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.186	7.347	-0.161		10064945	10.0			
* 28 13C2 PFDoA (IS)									s
614.9 > 569.9	7.365	7.526	-0.161		13119881	10.0			
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.529	7.642	-0.113		832168	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

s - Failed ISTD Recovery Test

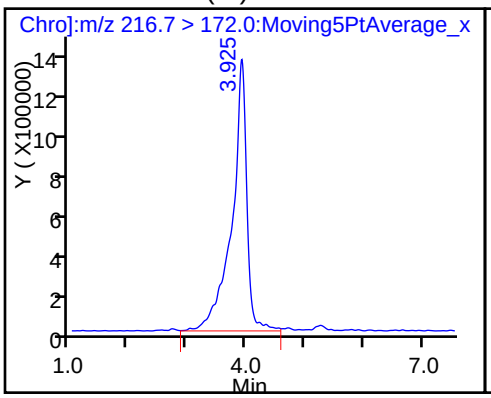
Report Date: 29-Jul-2016 15:56:34 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

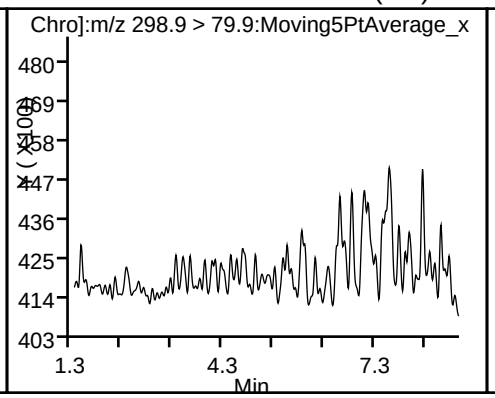
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28063.d

Injection Date:	28-Jul-2016 21:01:13	Instrument ID:	LC_LCMS5		
Lims ID:	280-85298-A-9-A	Lab Sample ID:	280-85298-9		
Client ID:	SWF-WB-3				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	19
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

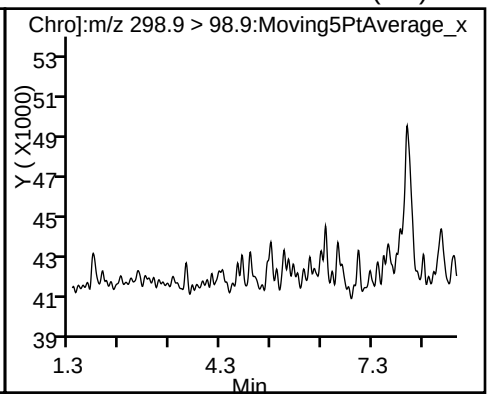
* 1 13C4 PFBA (IS)



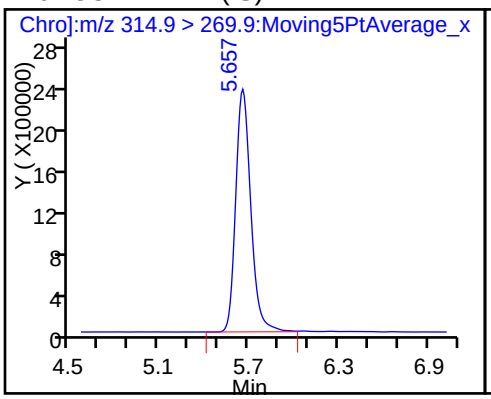
4 Perfluorobutane Sulfonate (ND)



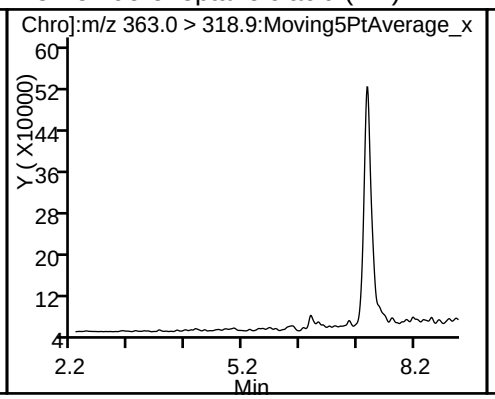
4 Perfluorobutane Sulfonate (ND)



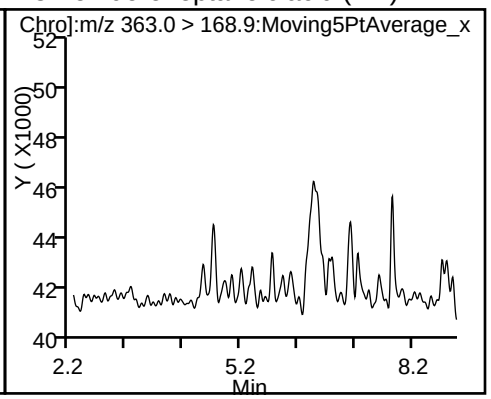
* 6 13C2 PFHxA (IS)



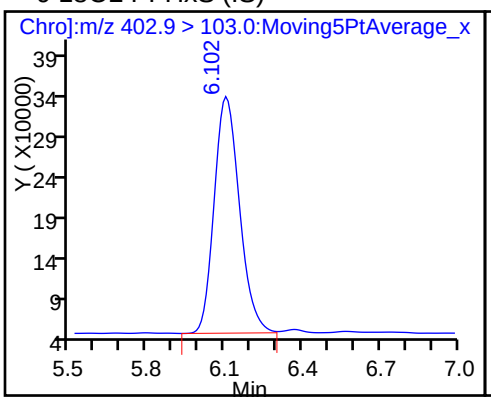
8 Perfluoroheptanoic acid (ND)



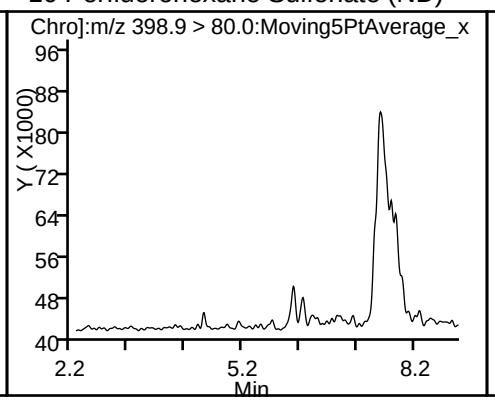
8 Perfluoroheptanoic acid (ND)



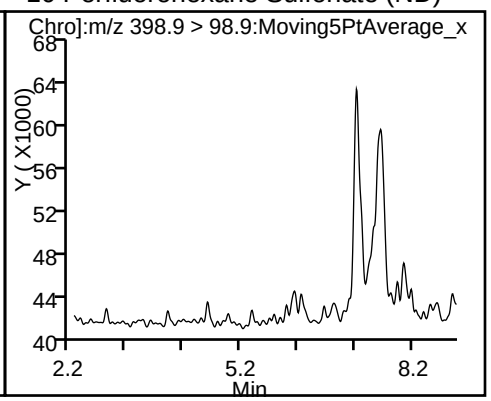
* 9 18O2 PFHxS (IS)



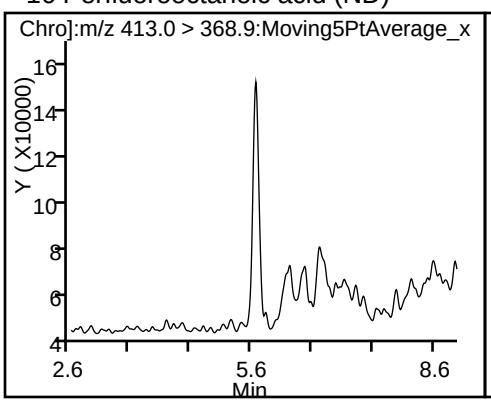
10 Perfluorohexane Sulfonate (ND)



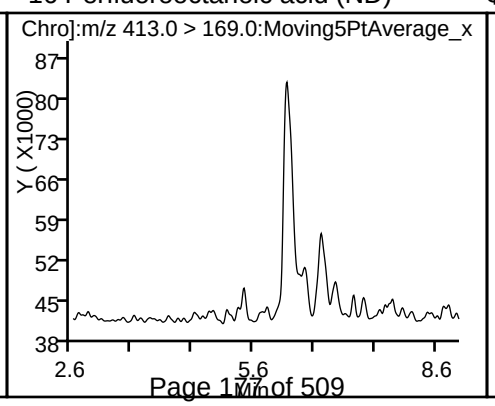
10 Perfluorohexane Sulfonate (ND)



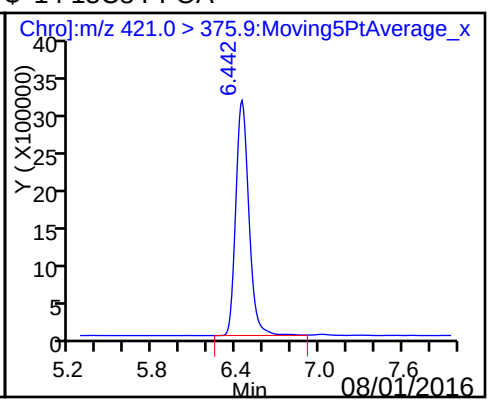
16 Perfluorooctanoic acid (ND)



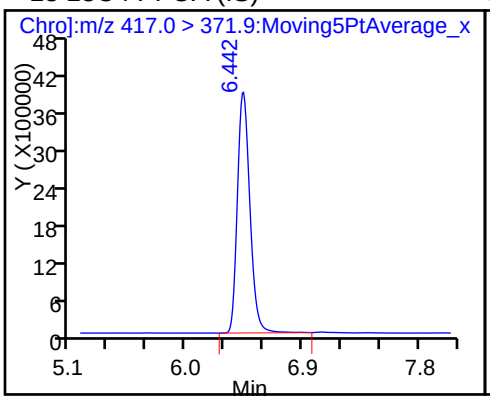
16 Perfluorooctanoic acid (ND)



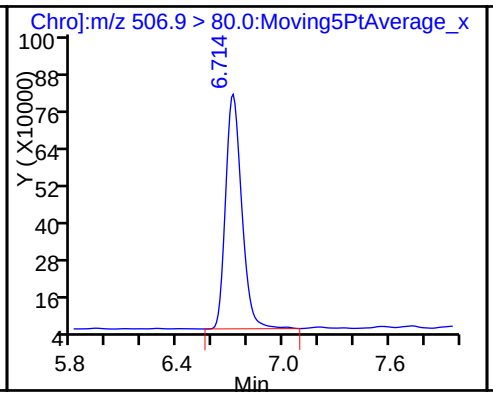
$ 14 13C8 PFOA



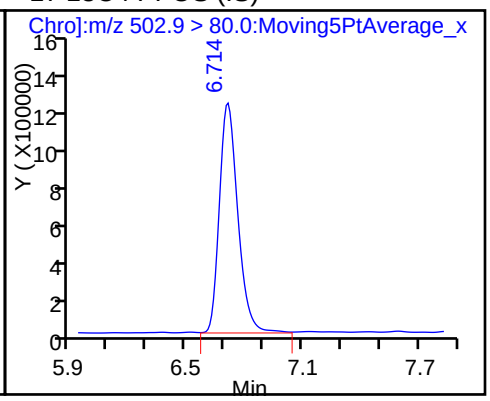
* 15 13C4 PFOA (IS)



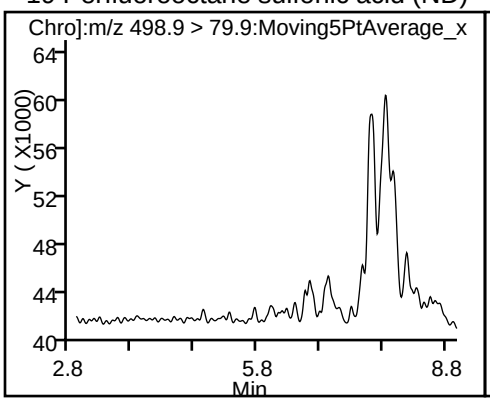
$ 18 13C8 PFOS



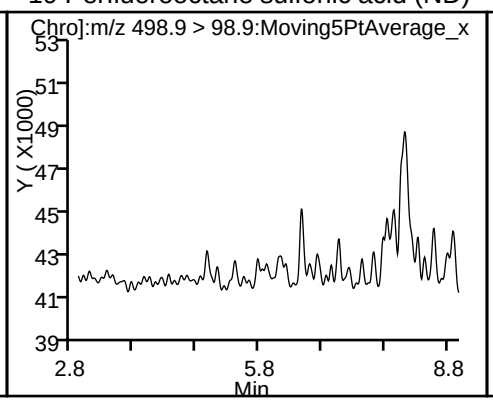
* 17 13C4 PFOS (IS)



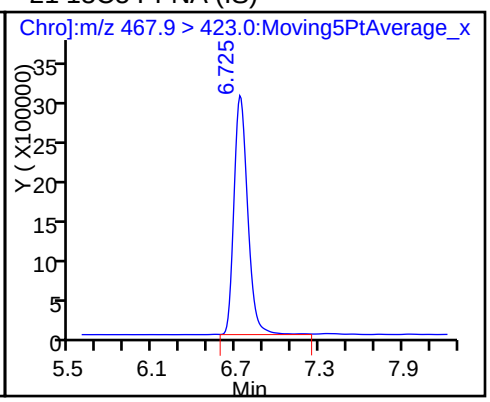
19 Perfluorooctane sulfonic acid (ND)



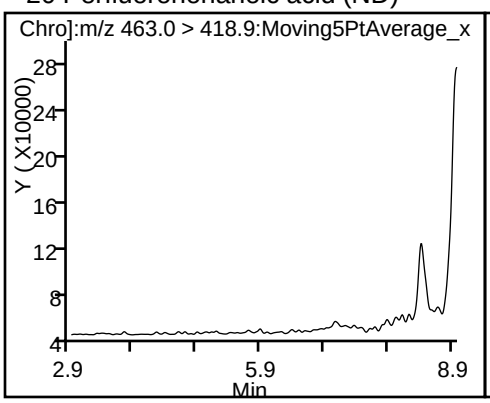
19 Perfluorooctane sulfonic acid (ND)



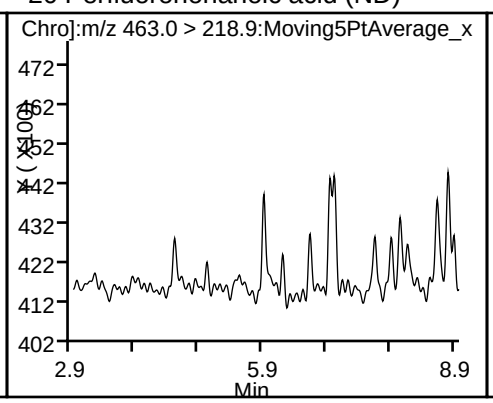
* 21 13C5 PFNA (IS)



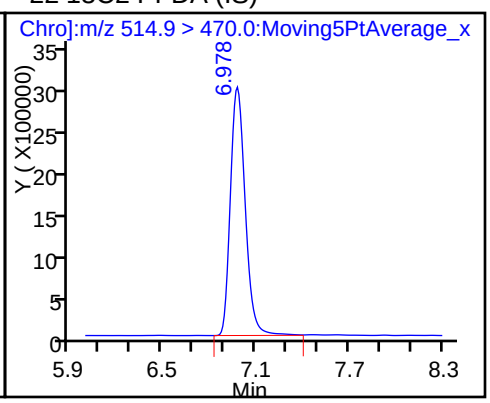
20 Perfluorononanoic acid (ND)



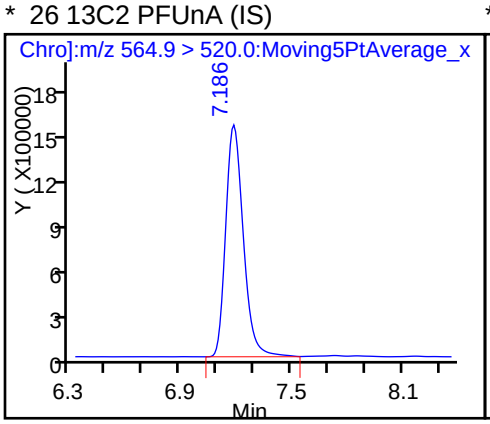
20 Perfluorononanoic acid (ND)



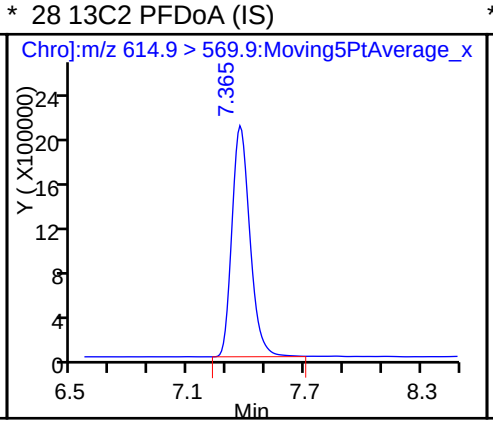
* 22 13C2 PFDA (IS)



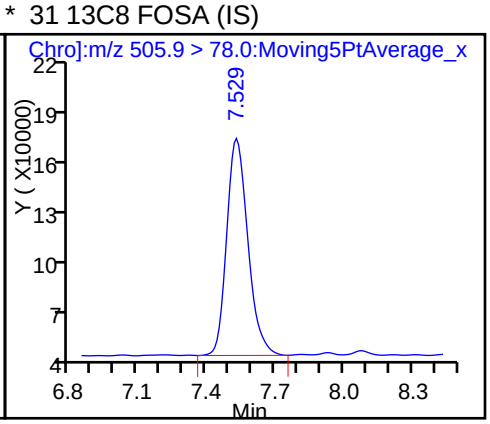
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: DBF-MW-3 | Lab Sample ID: 280-85298-10

Matrix: Water | Lab File ID: PC516G18057.d

Analysis Method: DV-LC-0012 | Date Collected: 07/06/2016 11:45

Extraction Method: 3535 | Date Extracted: 07/16/2016 07:25

Sample wt/vol: 251.3(mL) | Date Analyzed: 07/18/2016 23:21

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 334166 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.039	*	0.020	0.0082
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.060		0.030	0.013
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.39		0.030	0.0069
375-95-1	Perfluorononanoic acid (PFNA)	0.061		0.040	0.017
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.34		0.030	0.013
335-67-1	Perfluorooctanoic acid (PFOA)	0.60		0.020	0.0097

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	99		60-155
STL01054	13C8 PFOS	98		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18057.d
Lims ID: 280-85298-B-10-A Lab Sample ID: 280-85298-10
Client ID: DBF-MW-3
Sample Type: Client
Inject. Date: 18-Jul-2016 23:21:53 ALS Bottle#: 0 Worklist Smp#: 52
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85298-B-10-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 19-Jul-2016 15:53:35 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK035

First Level Reviewer: fiedlerh Date: 19-Jul-2016 14:28:40

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.020	4.276	-0.256		33953373	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.279	5.431	-0.152	0.855	2690054	1.94			
298.9 > 98.9	5.270	5.431	-0.161	0.853	942127		2.86(1.80-3.35)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.733	5.894	-0.161		21333806	10.0			
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.169	6.320	-0.151	0.948	8220105	3.03			
363.0 > 168.9	6.159	6.320	-0.161	0.946	2386114		3.44(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.177	6.329	-0.152		2521471	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.168	6.320	-0.152	0.999	20346449	19.8			R
398.9 > 98.9	6.168	6.320	-0.152	0.999	5853449		3.48(1.30-2.41)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.517	6.660	-0.143	1.001	24797571	9.91			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.508	6.669	-0.161		30960043	10.0			
16 Perfluorooctanoic acid									R
413.0 > 368.9	6.508	6.660	-0.152	1.000	96492731	30.1			R
413.0 > 169.0	6.508	6.660	-0.152	1.000	35238150		2.74(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.790	6.932	-0.142	1.000	4627166	9.33			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.790	6.932	-0.142		7753528	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.771	6.932	-0.161	0.997	16358655	17.3			R
498.9 > 98.9	6.781	6.932	-0.151	0.999	4611056		3.55(1.31-2.43)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.801	6.952	-0.152		22603043	10.0			
20 Perfluorononanoic acid									R
463.0 > 418.9	6.725	6.952	-0.227	0.989	7804197	3.05			R
463.0 > 218.9	6.725	6.952	-0.227	0.989	1508685		5.17(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.054	7.196	-0.142		21301883	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.262	7.395	-0.133		9346353	10.0			
* 28 13C2 PFDoA (IS)									s
614.9 > 569.9	7.441	7.573	-0.132		14900142	10.0			
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.576	7.728	-0.152		741493	10.0			

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

s - Failed ISTD Recovery Test

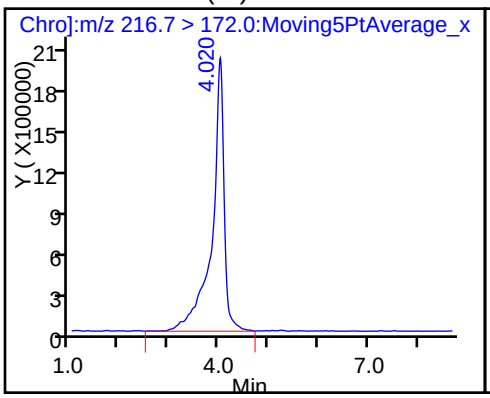
Report Date: 19-Jul-2016 15:54:02 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

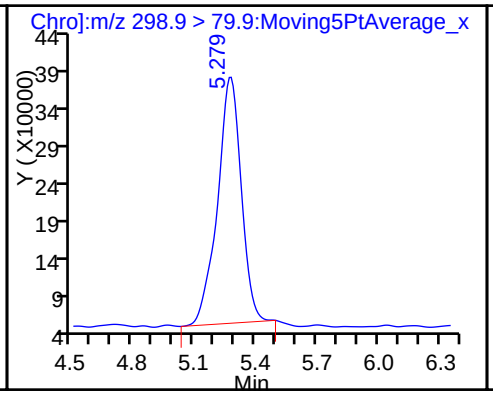
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18057.d

Injection Date:	18-Jul-2016 23:21:53	Instrument ID:	LC_LCMS5		
Lims ID:	280-85298-B-10-A	Lab Sample ID:	280-85298-10		
Client ID:	DBF-MW-3				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	52
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

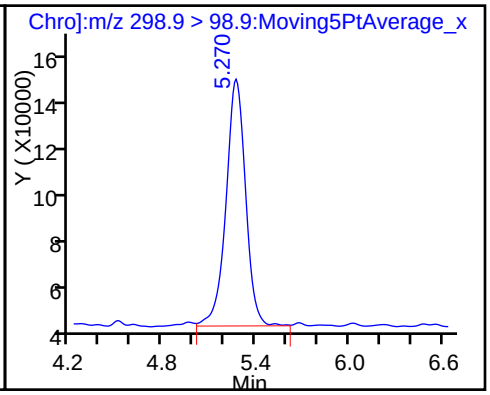
* 1 13C4 PFBA (IS)



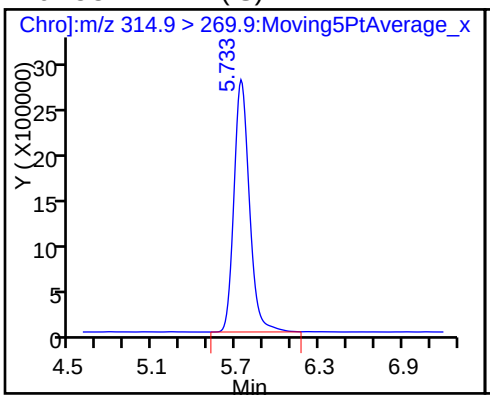
4 Perfluorobutane Sulfonate



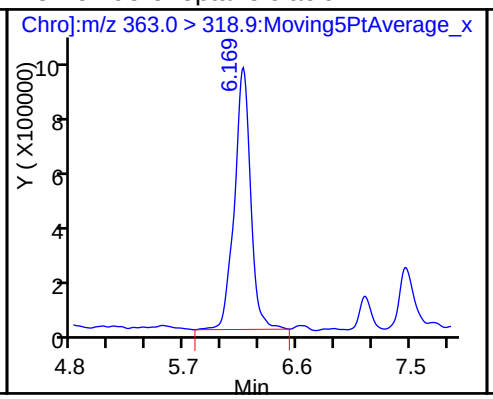
4 Perfluorobutane Sulfonate



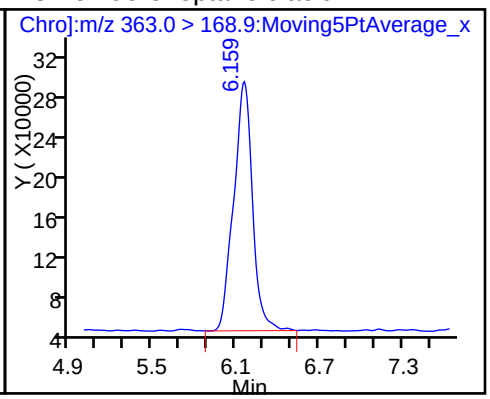
* 6 13C2 PFHxA (IS)



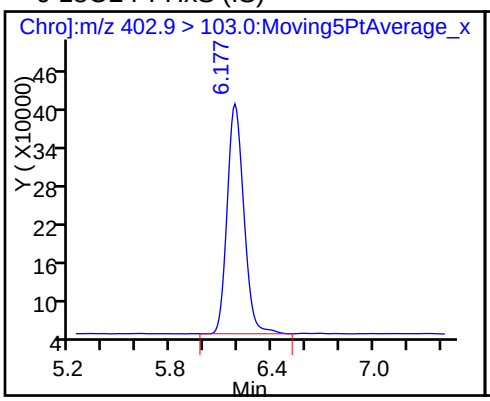
8 Perfluoroheptanoic acid



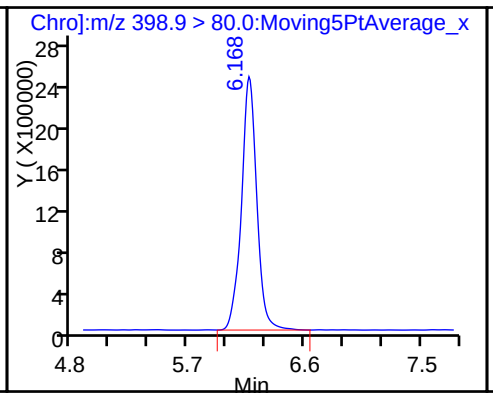
8 Perfluoroheptanoic acid



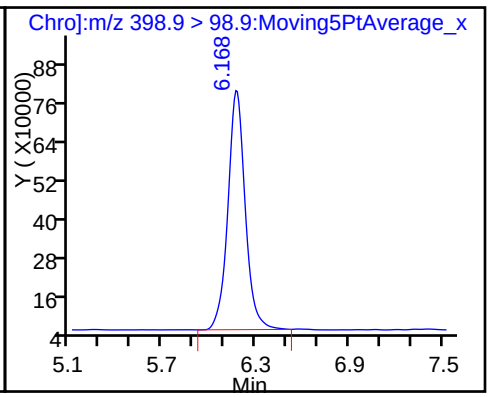
* 9 18O2 PFHxS (IS)



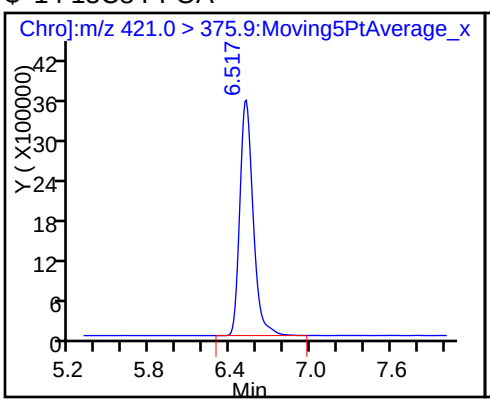
10 Perfluorohexane Sulfonate



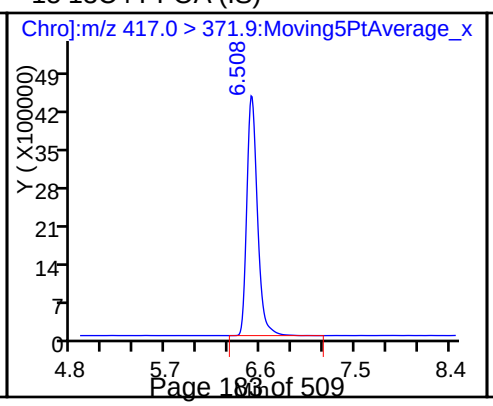
10 Perfluorohexane Sulfonate



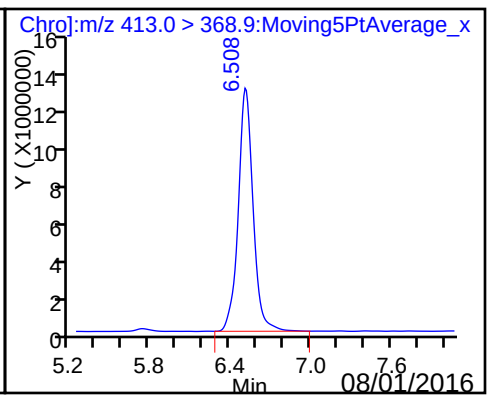
$ 14 13C8 PFOA



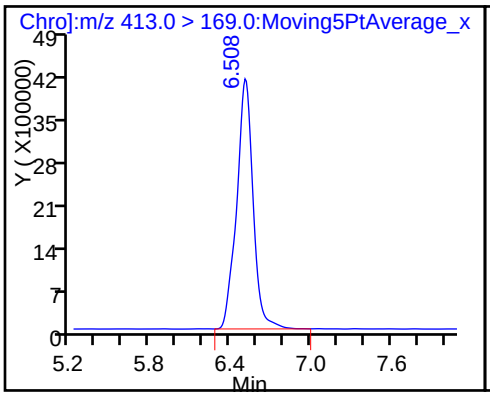
* 15 13C4 PFOA (IS)



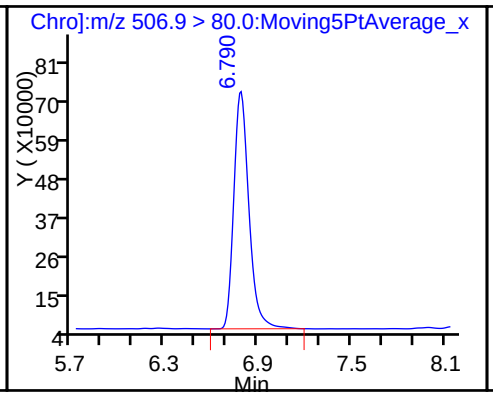
16 Perfluorooctanoic acid



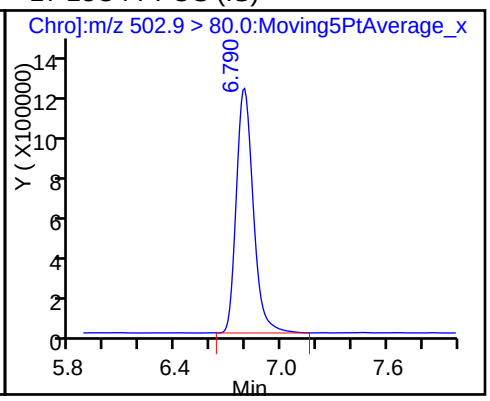
16 Perfluorooctanoic acid



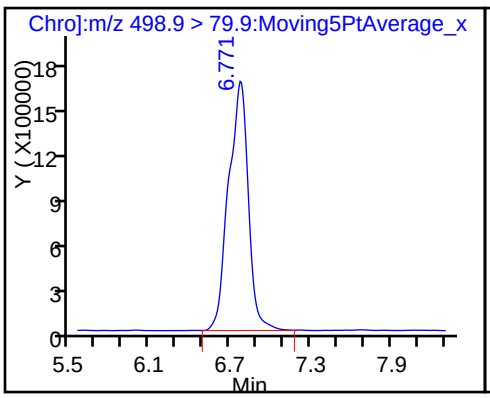
$ 18 13C8 PFOS



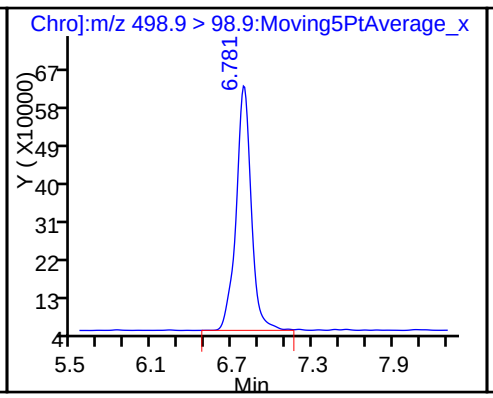
* 17 13C4 PFOS (IS)



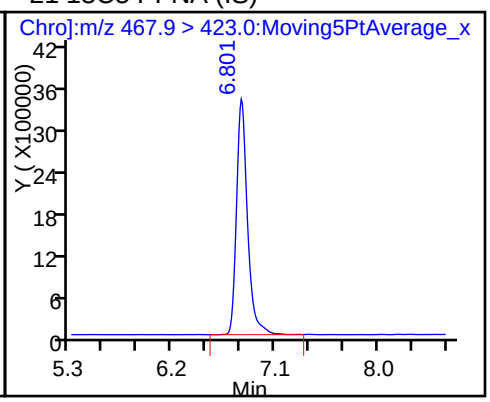
19 Perfluorooctane sulfonic acid



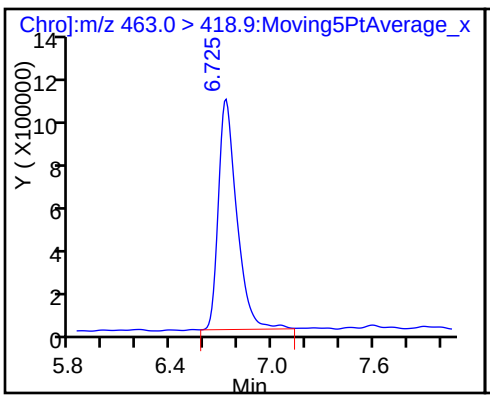
19 Perfluorooctane sulfonic acid



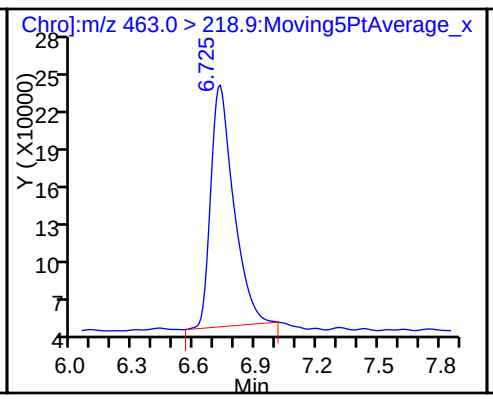
* 21 13C5 PFNA (IS)



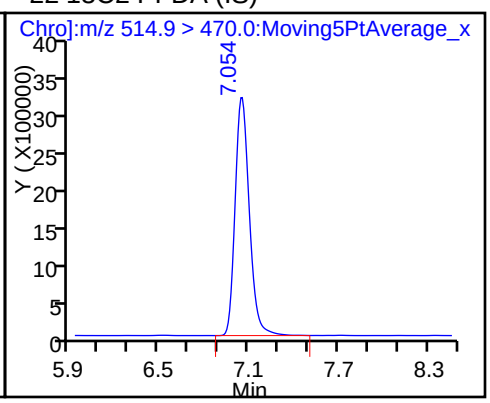
20 Perfluorononanoic acid



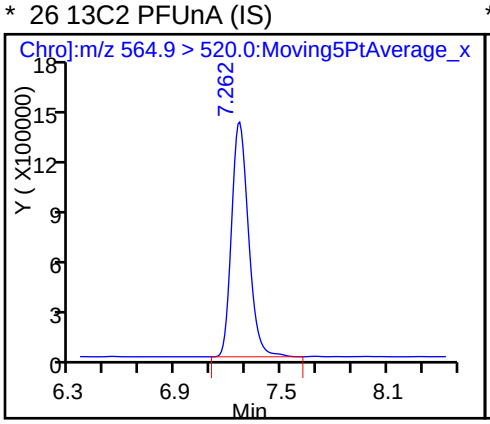
20 Perfluorononanoic acid



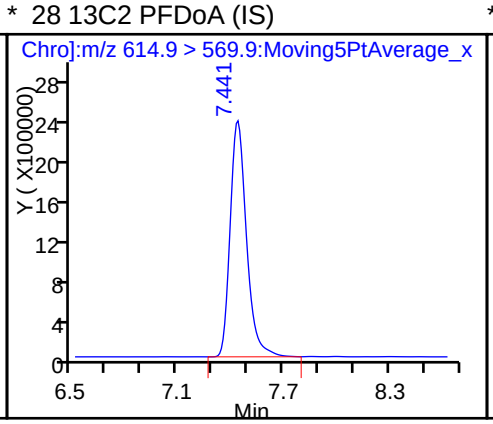
* 22 13C2 PFDA (IS)



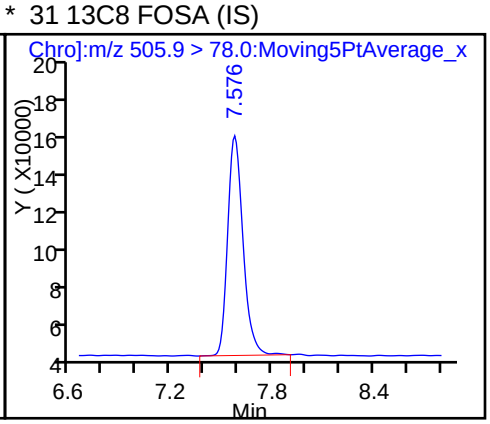
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: DBF-MW-3 RE | Lab Sample ID: 280-85298-10 RE

Matrix: Water | Lab File ID: PC516G28064.d

Analysis Method: DV-LC-0012 | Date Collected: 07/06/2016 11:45

Extraction Method: 3535 | Date Extracted: 07/25/2016 10:50

Sample wt/vol: 263.9(mL) | Date Analyzed: 07/28/2016 21:13

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 335652 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	*Perfluorobutane Sulfonate (PFBS)*	*0.050*	*H*	*0.019*	*0.0078*
375-85-9	*Perfluoroheptanoic acid (PFHpA)*	*0.063*	*H*	*0.028*	*0.013*
108427-53-8	*Perfluorohexane Sulfonate (PFHxS)*	*0.50*	*H*	*0.028*	*0.0066*
375-95-1	*Perfluorononanoic acid (PFNA)*	*0.066*	*H*	*0.038*	*0.016*
1763-23-1	*Perfluorooctanesulfonic acid (PFOS)*	*0.38*	*H*	*0.028*	*0.013*
335-67-1	*Perfluorooctanoic acid (PFOA)*	*0.74*	*H*	*0.019*	*0.0093*

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	107		60-155
STL01054	13C8 PFOS	99		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28064.d
Lims ID: 280-85298-A-10-A Lab Sample ID: 280-85298-10
Client ID: DBF-MW-3
Sample Type: Client
Inject. Date: 28-Jul-2016 21:13:31 ALS Bottle#: 0 Worklist Smp#: 20
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85298-A-10-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 29-Jul-2016 10:37:26 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK010

First Level Reviewer: meyera Date: 29-Jul-2016 09:49:11

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.048	4.029	0.019		22592254	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.241	5.241	0.0	0.856	2901270	2.65			
298.9 > 98.9	5.241	5.241	0.0	0.856	999485		2.90(1.80-3.35)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.686	5.695	-0.009		16873967	10.0			
8 Perfluoroheptanoic acid									R
363.0 > 318.9	6.102	6.112	-0.010	0.946	6674374	3.32			R
363.0 > 168.9	6.102	6.112	-0.010	0.946	2096727		3.18(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.120	6.120	0.0		1986639	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.111	6.130	-0.019	0.998	21537959	26.7			R
398.9 > 98.9	6.111	6.130	-0.019	0.998	6445877		3.34(1.30-2.41)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.451	6.470	-0.019	1.000	19477947	10.5			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.451	6.461	-0.010		22981679	10.0			
16 Perfluorooctanoic acid									R
413.0 > 368.9	6.452	6.461	-0.009	1.000	93027413	39.1			R
413.0 > 169.0	6.452	6.461	-0.009	1.000	33028585		2.82(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.723	6.742	-0.019	1.000	4473141	9.17			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.724	6.743	-0.019		7629867	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.715	6.743	-0.028	0.999	18449286	19.8			R
498.9 > 98.9	6.724	6.743	-0.019	1.000	5308753		3.48(1.31-2.43)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.744	6.753	-0.009		19602595	10.0			
20 Perfluorononanoic acid									R
463.0 > 418.9	6.668	6.753	-0.085	0.989	7745450	3.49			R
463.0 > 218.9	6.659	6.753	-0.094	0.987	1450094		5.34(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	6.988	7.007	-0.019		17433502	10.0			
* 26 13C2 PFUnA (IS)									s
564.9 > 520.0	7.196	7.215	-0.019		7290340	10.0			
* 28 13C2 PFDoA (IS)									s
614.9 > 569.9	7.375	7.393	-0.018		9993407	10.0			
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.538	7.557	-0.019		1375085	10.0			

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

s - Failed ISTD Recovery Test

Report Date: 29-Jul-2016 10:37:47 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28064.d

Injection Date: 28-Jul-2016 21:13:31 Instrument ID: LC_LCMS5

Lims ID: 280-85298-A-10-A Lab Sample ID: 280-85298-10

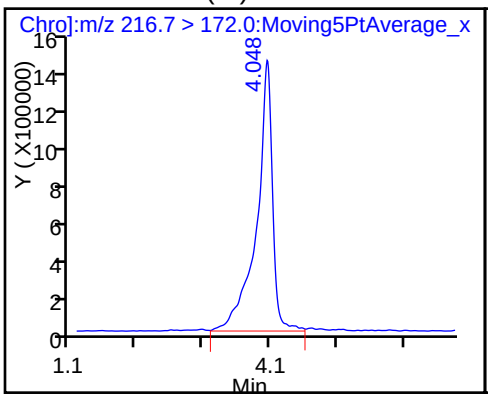
Client ID: DBF-MW-3

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 20

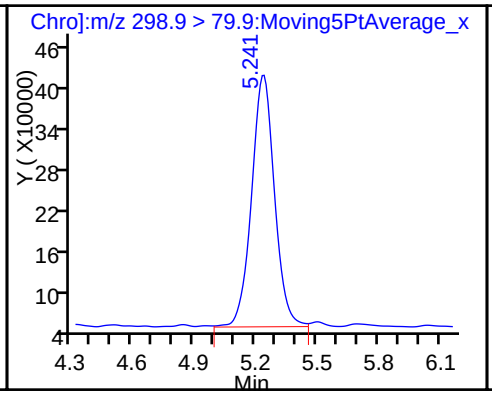
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

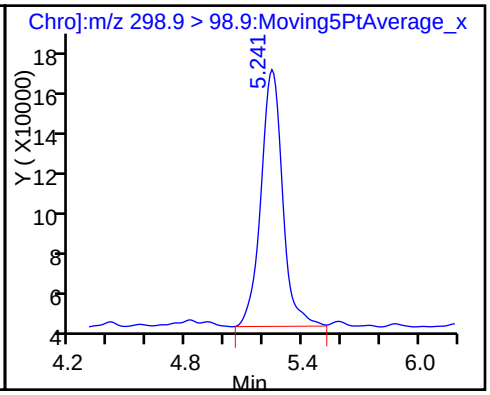
* 1 13C4 PFBA (IS)



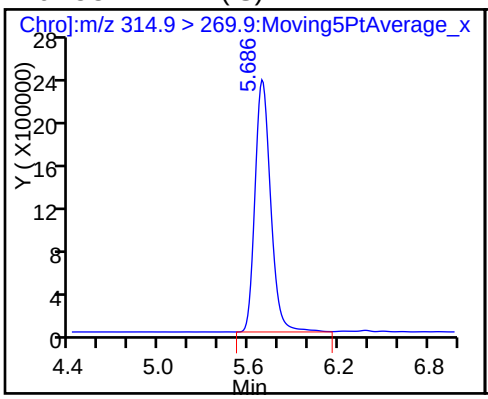
4 Perfluorobutane Sulfonate



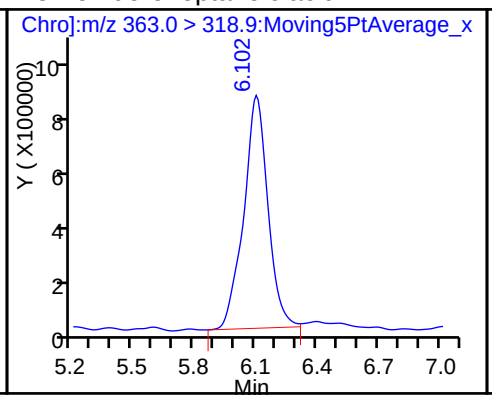
4 Perfluorobutane Sulfonate



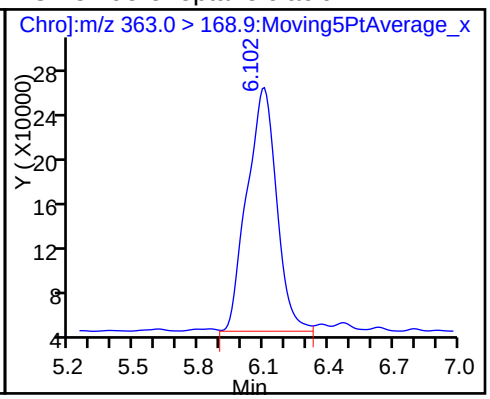
* 6 13C2 PFHxA (IS)



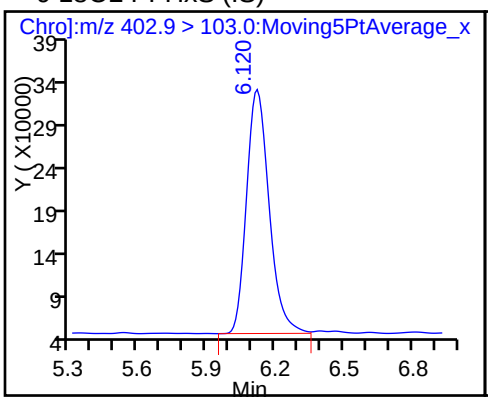
8 Perfluoroheptanoic acid



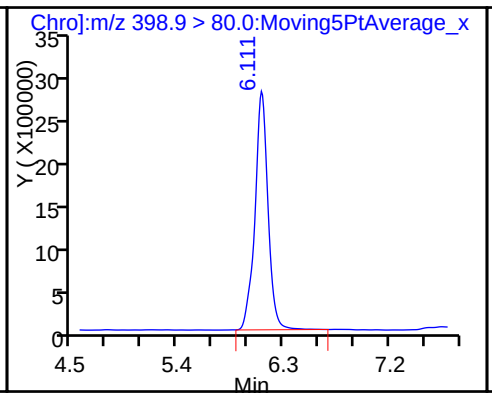
8 Perfluoroheptanoic acid



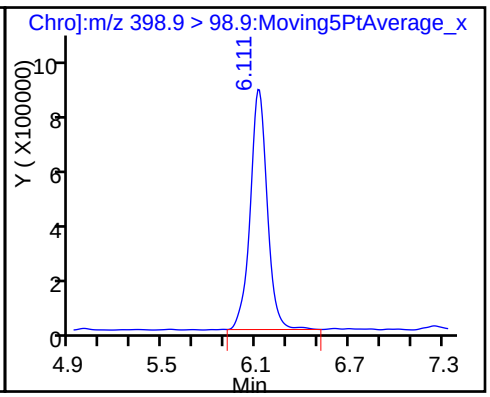
* 9 18O2 PFHxS (IS)



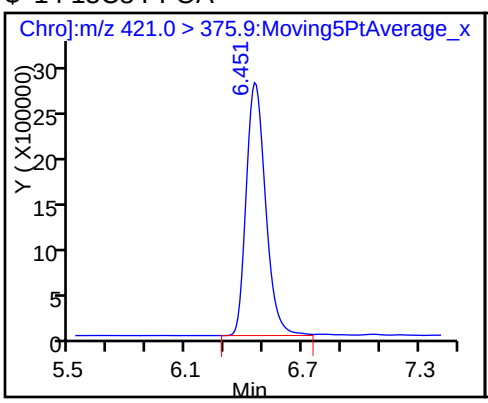
10 Perfluorohexane Sulfonate



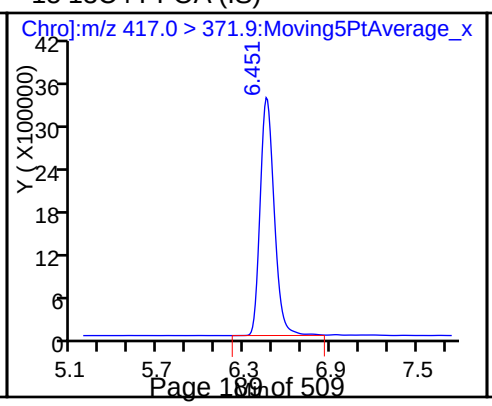
10 Perfluorohexane Sulfonate



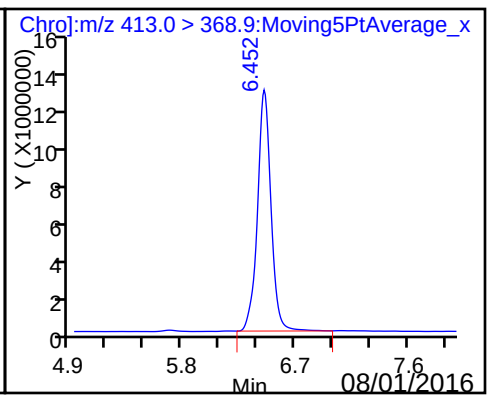
$ 14 13C8 PFOA



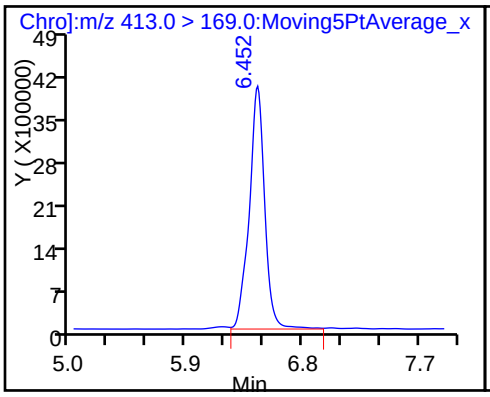
* 15 13C4 PFOA (IS)



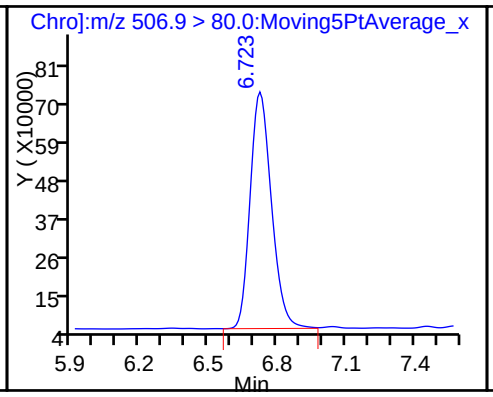
16 Perfluorooctanoic acid



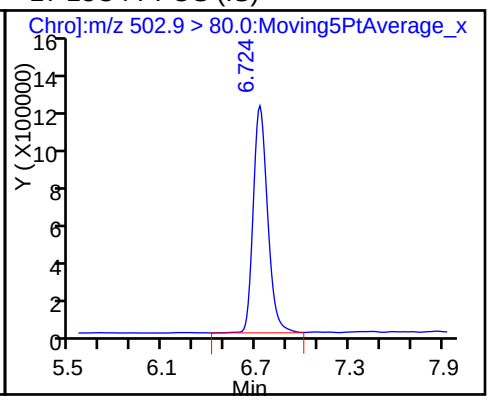
16 Perfluorooctanoic acid



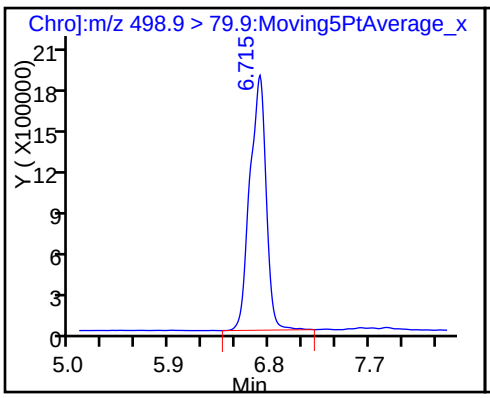
$ 18 13C8 PFOS



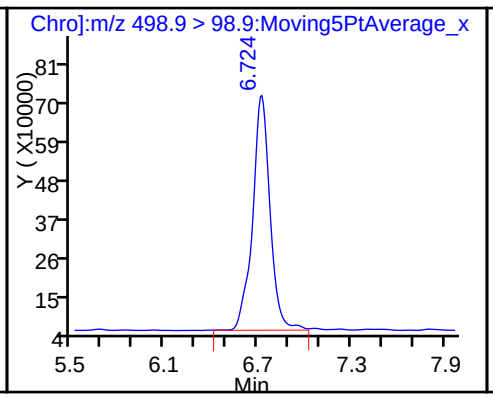
* 17 13C4 PFOS (IS)



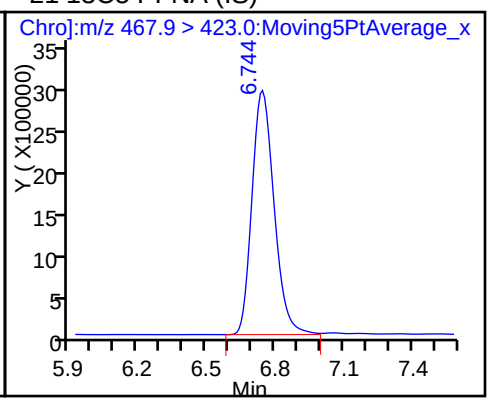
19 Perfluorooctane sulfonic acid



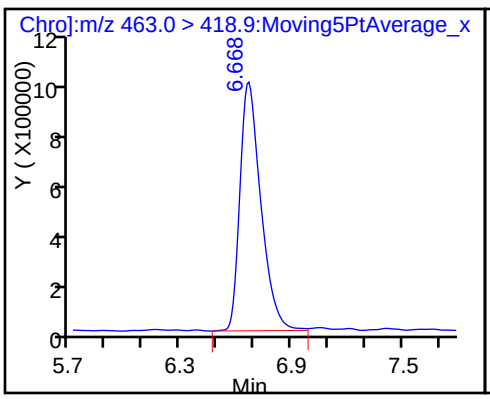
19 Perfluorooctane sulfonic acid



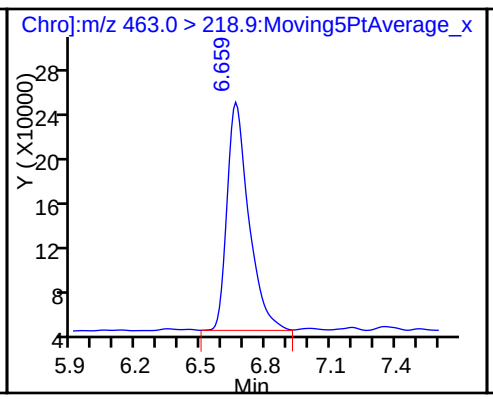
* 21 13C5 PFNA (IS)



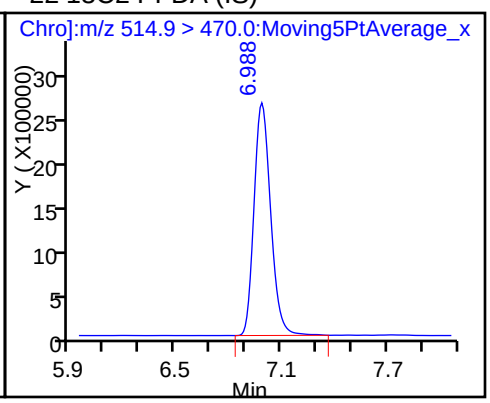
20 Perfluorononanoic acid



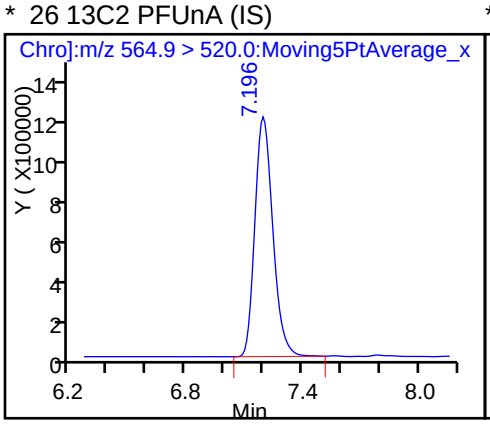
20 Perfluorononanoic acid



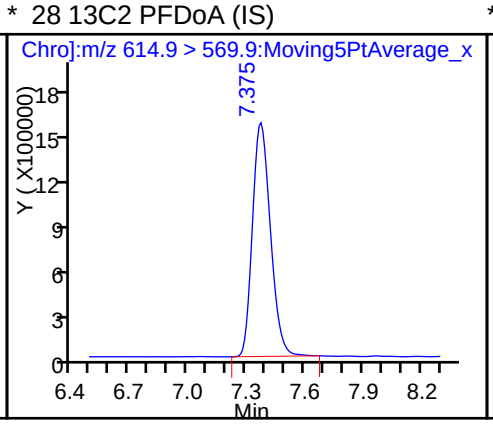
* 22 13C2 PFDA (IS)



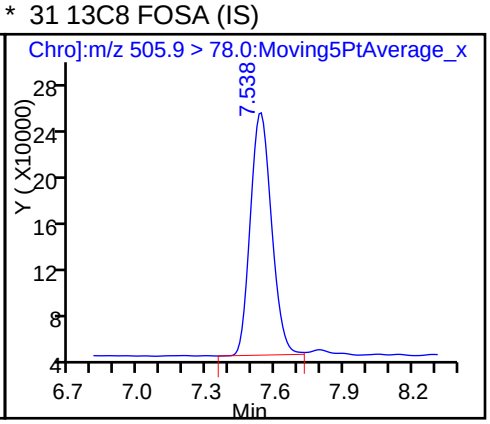
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: DBF-MW-4 | Lab Sample ID: 280-85298-11

Matrix: Water | Lab File ID: PC516G20063.d

Analysis Method: DV-LC-0012 | Date Collected: 07/06/2016 12:35

Extraction Method: 3535 | Date Extracted: 07/16/2016 07:25

Sample wt/vol: 248.8(mL) | Date Analyzed: 07/20/2016 18:40

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 334502 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.032	*	0.020	0.0083
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.13		0.030	0.013
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.28		0.030	0.0070
375-95-1	Perfluorononanoic acid (PFNA)	0.037	J	0.040	0.017
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.12		0.030	0.013
335-67-1	Perfluorooctanoic acid (PFOA)	0.54		0.020	0.0098

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	102		60-155
STL01054	13C8 PFOS	104		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160721-49036.b\PC516G20063.d
Lims ID: 280-85298-B-11-A Lab Sample ID: 280-85298-11
Client ID: DBF-MW-4
Sample Type: Client
Inject. Date: 20-Jul-2016 18:40:19 ALS Bottle#: 0 Worklist Smp#: 4
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85298-B-11-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160721-49036.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 21-Jul-2016 08:33:16 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK004

First Level Reviewer: meyera Date: 21-Jul-2016 08:15:55

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	3.906	4.124	-0.218		32904539	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.175	5.279	-0.104	0.849	2251445	1.57			
298.9 > 98.9	5.166	5.279	-0.113	0.848	691188		3.26(1.80-3.35)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.648	5.714	-0.066		20867824	10.0			
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.092	6.139	-0.047		2604123	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.092	6.130	-0.038	1.000	14782652	13.9			R
398.9 > 98.9	6.092	6.130	-0.038	1.000	4542883		3.25(1.30-2.41)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.083	6.131	-0.048	0.943	16823995	6.39			
363.0 > 168.9	6.083	6.131	-0.048	0.943	4342357		3.87(3.35-6.23)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.451	6.470	-0.019	1.000	24807922	10.2			
16 Perfluorooctanoic acid									R
413.0 > 368.9	6.452	6.471	-0.019	1.000	84364032	26.9			R
413.0 > 169.0	6.442	6.471	-0.029	0.999	30793649		2.74(2.86-5.31)		
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.451	6.470	-0.019		30206137	10.0			
$ 18 13C8 PFOS									
506.9 > 80.0	6.733	6.742	-0.009	1.000	5236636	9.96			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.733	6.743	-0.010		8218414	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.639	6.743	-0.104	0.986	5896622	5.83			R
498.9 > 98.9	6.715	6.743	-0.028	0.997	1290003		4.57(1.31-2.43)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.744	6.763	-0.019		25083365	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.668	6.763	-0.095	0.989	5290279	1.84			
463.0 > 218.9	6.668	6.763	-0.095	0.989	870391		6.08(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	6.997	7.007	-0.010		22021381	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.205	7.215	-0.010		12772872	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.393	7.393	0.0		21181383	10.0			
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.519	7.519	0.0		1053323	10.0			

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

s - Failed ISTD Recovery Test

Report Date: 21-Jul-2016 08:33:22 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160721-49036.b\PC516G20063.d

Injection Date: 20-Jul-2016 18:40:19 Instrument ID: LC_LCMS5

Lims ID: 280-85298-B-11-A Lab Sample ID: 280-85298-11

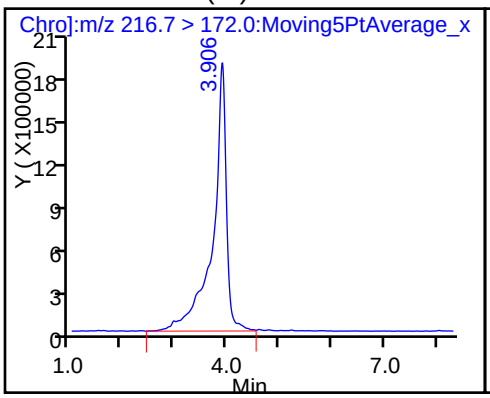
Client ID: DBF-MW-4

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 4

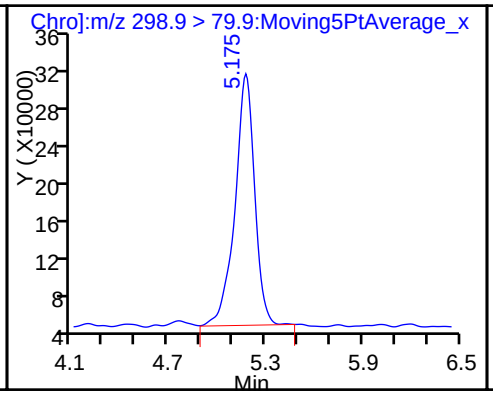
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

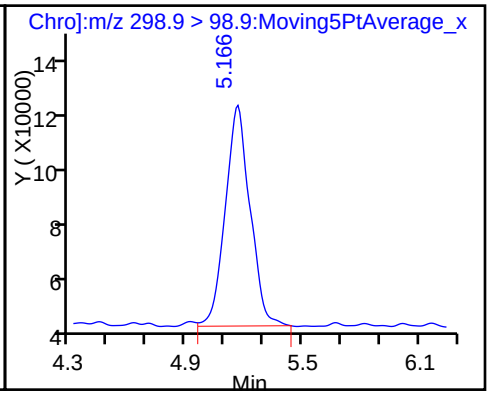
* 1 13C4 PFBA (IS)



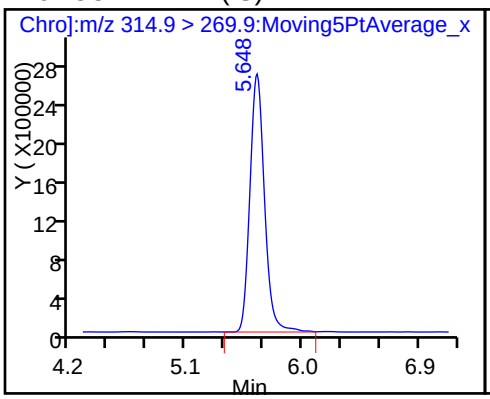
4 Perfluorobutane Sulfonate



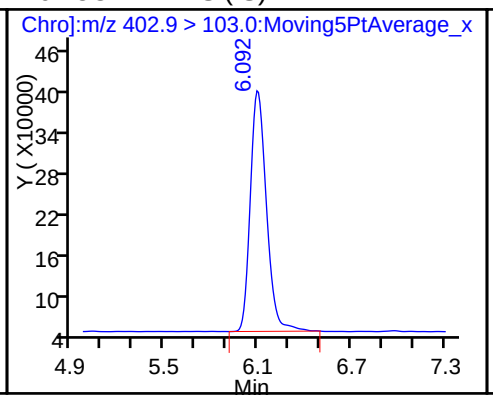
4 Perfluorobutane Sulfonate



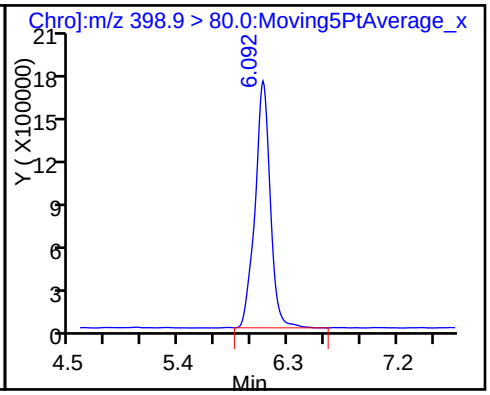
* 6 13C2 PFHxA (IS)



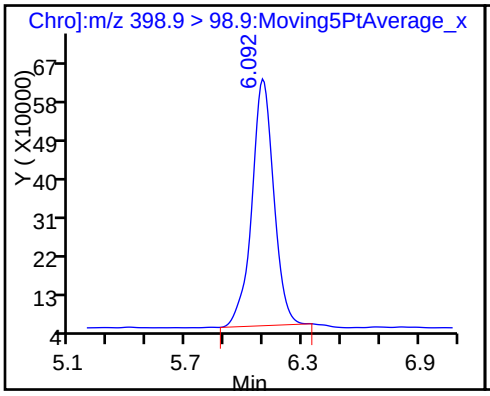
* 9 18O2 PFHxS (IS)



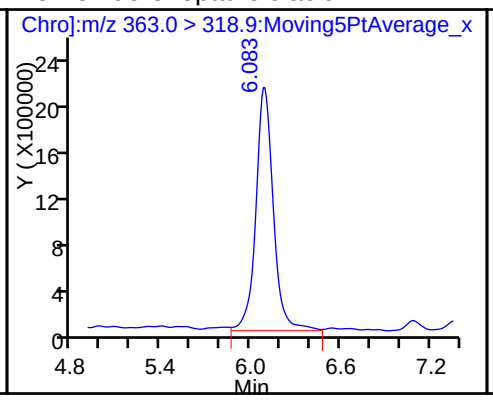
10 Perfluorohexane Sulfonate



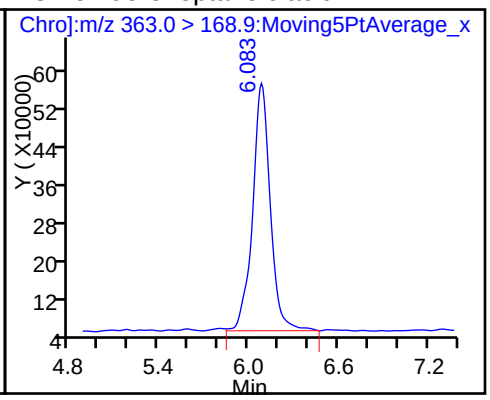
10 Perfluorohexane Sulfonate



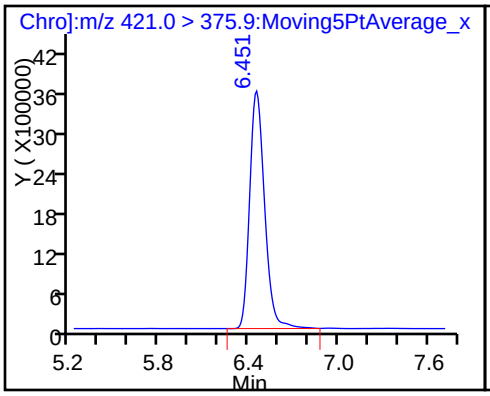
8 Perfluoroheptanoic acid



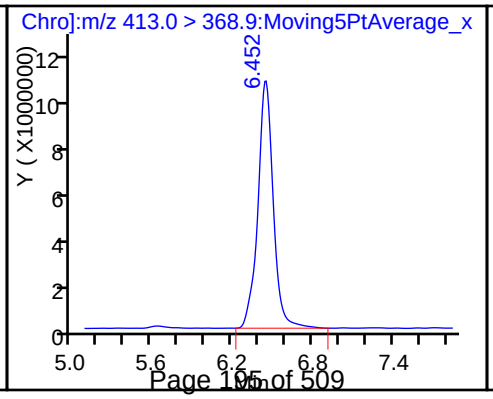
8 Perfluoroheptanoic acid



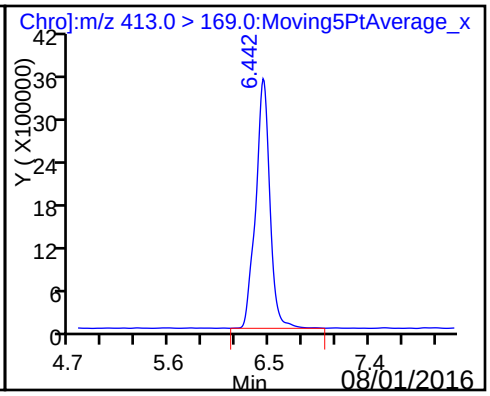
$ 14 13C8 PFOA



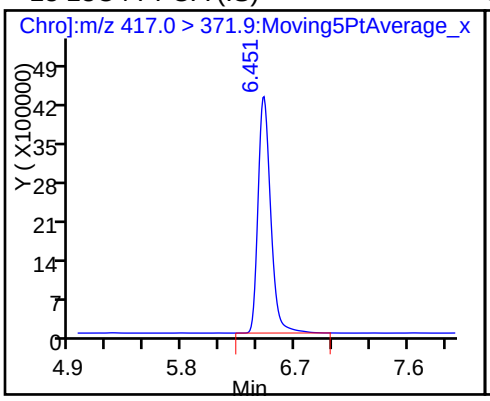
16 Perfluorooctanoic acid



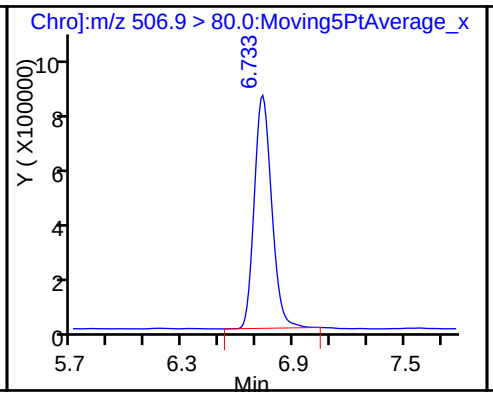
16 Perfluorooctanoic acid



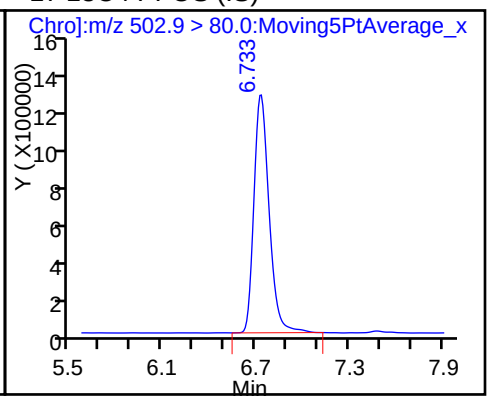
* 15 13C4 PFOA (IS)



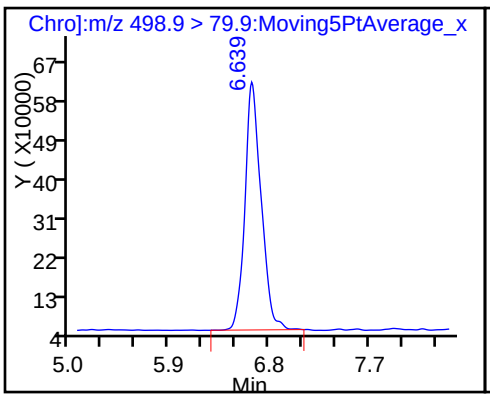
$ 18 13C8 PFOS



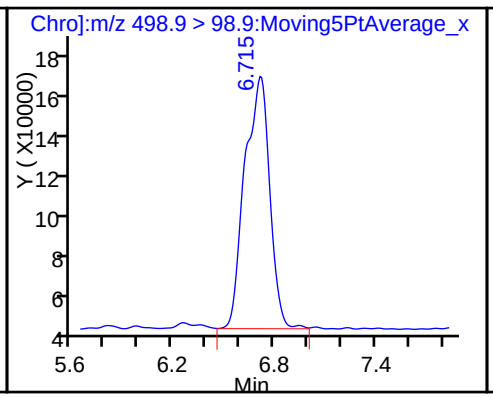
* 17 13C4 PFOS (IS)



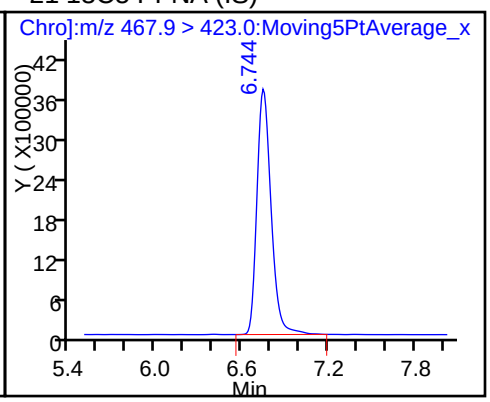
19 Perfluorooctane sulfonic acid



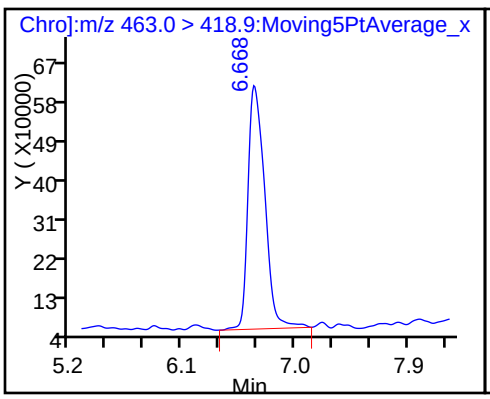
19 Perfluorooctane sulfonic acid



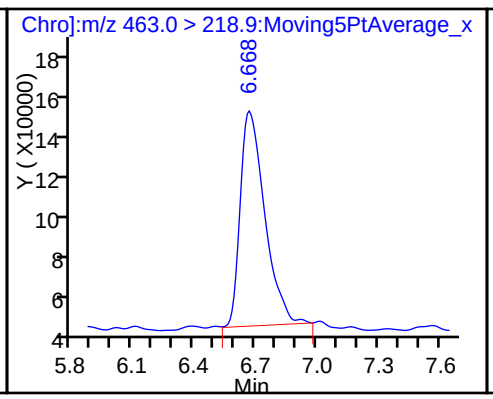
* 21 13C5 PFNA (IS)



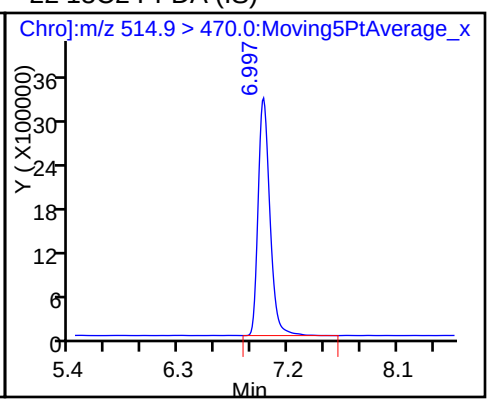
20 Perfluorononanoic acid



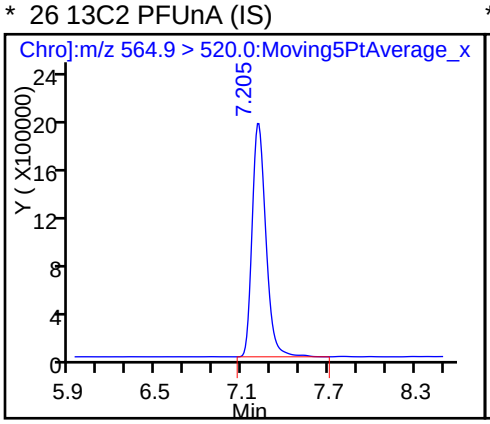
20 Perfluorononanoic acid



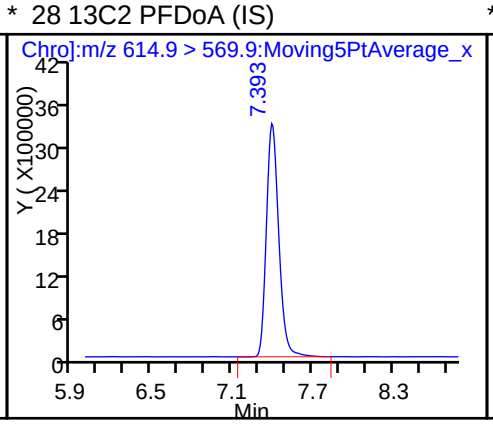
* 22 13C2 PFDA (IS)



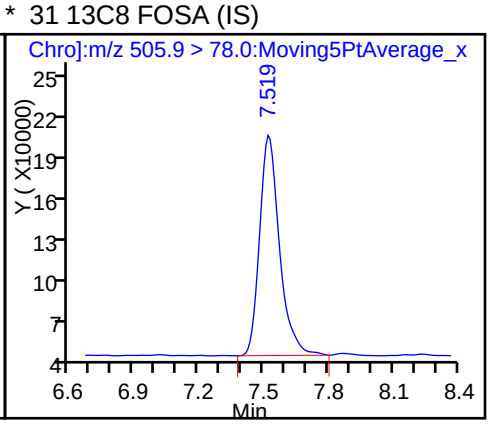
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: DBF-MW-4 RE | Lab Sample ID: 280-85298-11 RE

Matrix: Water | Lab File ID: PC516G28065.d

Analysis Method: DV-LC-0012 | Date Collected: 07/06/2016 12:35

Extraction Method: 3535 | Date Extracted: 07/25/2016 10:50

Sample wt/vol: 231.2(mL) | Date Analyzed: 07/28/2016 21:25

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 335652 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	*Perfluorobutane Sulfonate (PFBS)*	*0.043*	*H*	*0.022*	*0.0089*
375-85-9	*Perfluoroheptanoic acid (PFHpA)*	*0.12*	*H*	*0.032*	*0.014*
108427-53-8	*Perfluorohexane Sulfonate (PFHxS)*	*0.37*	*H*	*0.032*	*0.0075*
375-95-1	*Perfluorononanoic acid (PFNA)*	*0.043*	*H*	*0.043*	*0.019*
1763-23-1	*Perfluorooctanesulfonic acid (PFOS)*	*0.14*	*H*	*0.032*	*0.014*
335-67-1	*Perfluorooctanoic acid (PFOA)*	*0.63*	*H*	*0.022*	*0.011*

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	106		60-155
STL01054	13C8 PFOS	105		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28065.d
Lims ID: 280-85298-A-11-A Lab Sample ID: 280-85298-11
Client ID: DBF-MW-4
Sample Type: Client
Inject. Date: 28-Jul-2016 21:25:54 ALS Bottle#: 0 Worklist Smp#: 21
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85298-A-11-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 29-Jul-2016 15:57:18 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK003

First Level Reviewer: meyera Date: 29-Jul-2016 09:49:36

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	3.906	4.134	-0.228		21025436	10.0			
4 Perfluorobutane Sulfonate									M
298.9 > 79.9	5.194	5.327	-0.133	0.851	2011198	1.97			
298.9 > 98.9	5.194	5.327	-0.133	0.851	620066		3.24(1.80-3.35)		M
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.657	5.800	-0.143		15003347	10.0			
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.093	6.244	-0.151	0.946	11463368	5.74			
363.0 > 168.9	6.083	6.244	-0.161	0.944	2916062		3.93(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.102	6.253	-0.151		1854440	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.092	6.253	-0.161	0.998	13057205	17.3			R
398.9 > 98.9	6.092	6.253	-0.161	0.998	3941116		3.31(1.30-2.41)		
16 Perfluorooctanoic acid									R
413.0 > 368.9	6.442	6.603	-0.161	1.000	69515984	29.3			R
413.0 > 169.0	6.442	6.603	-0.161	1.000	25359720		2.74(2.86-5.31)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.442	6.612	-0.170	1.000	19237972	10.4			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.442	6.612	-0.170		22921036	10.0			
$ 18 13C8 PFOS									
506.9 > 80.0	6.723	6.884	-0.161	1.000	4292579	9.75			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.724	6.885	-0.161		6883708	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.629	6.885	-0.256	0.986	5451164	6.44			R
498.9 > 98.9	6.696	6.885	-0.189	0.996	1160747		4.70(1.31-2.43)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.734	6.905	-0.171		19329569	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.659	6.905	-0.246	0.989	4382357	1.99			
463.0 > 218.9	6.668	6.905	-0.237	0.990	737484		5.94(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	6.988	7.149	-0.161		14933516	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.196	7.347	-0.151		8058061	10.0			
* 28 13C2 PFDoA (IS)									s
614.9 > 569.9	7.384	7.526	-0.142		11785818	10.0			
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.548	7.642	-0.094		1576838	10.0			

QC Flag Legend

Processing Flags
- R - Failed Signal Ratio Test
- s - Failed ISTD Recovery Test

Review Flags
- M - Manually Integrated

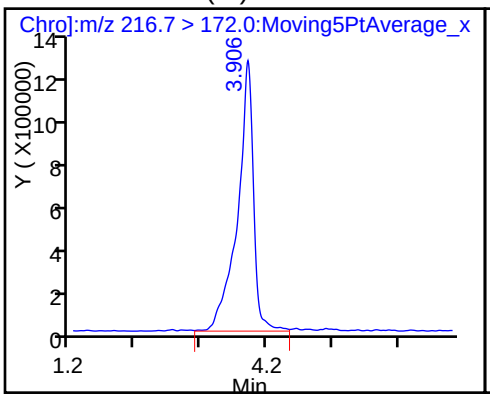
Report Date: 29-Jul-2016 15:57:20 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

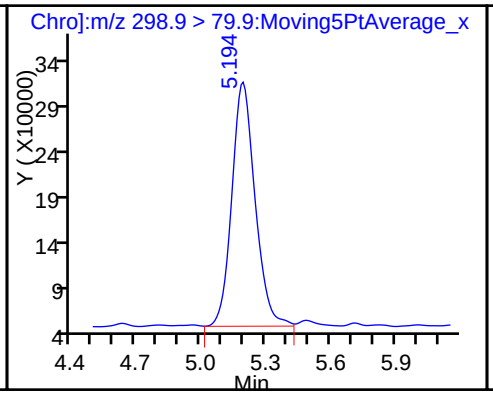
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28065.d

Injection Date:	28-Jul-2016 21:25:54	Instrument ID:	LC_LCMS5		
Lims ID:	280-85298-A-11-A	Lab Sample ID:	280-85298-11		
Client ID:	DBF-MW-4				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	21
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

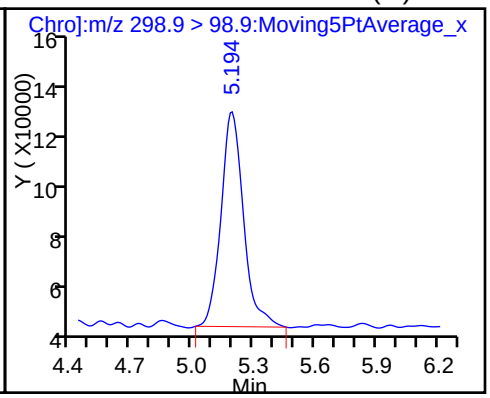
* 1 13C4 PFBA (IS)



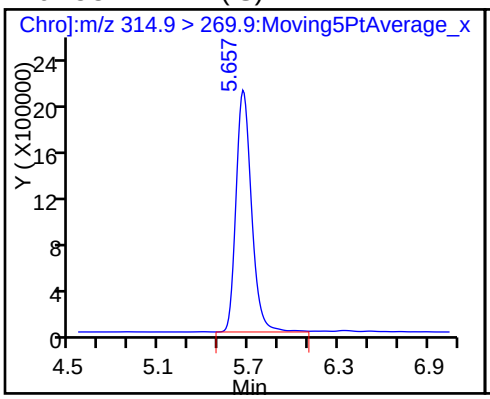
4 Perfluorobutane Sulfonate



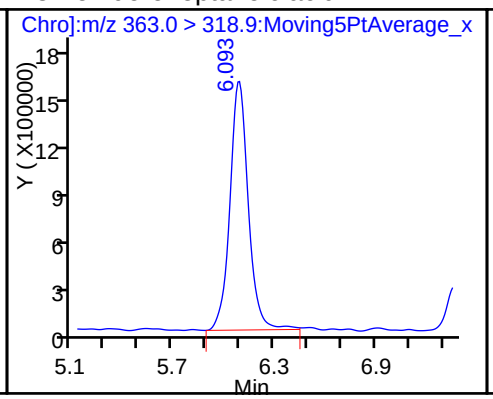
4 Perfluorobutane Sulfonate (M)



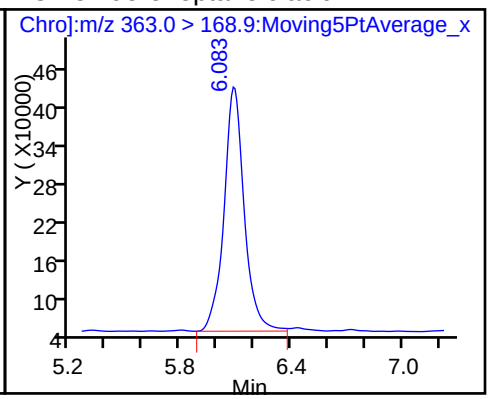
* 6 13C2 PFHxA (IS)



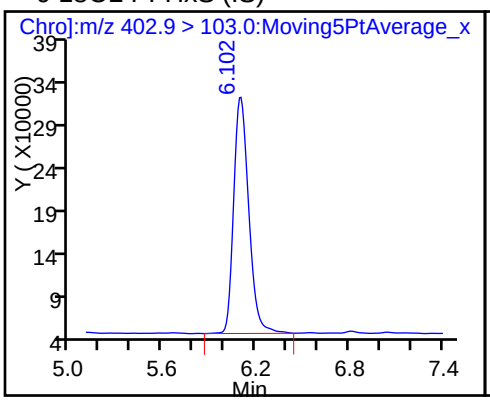
8 Perfluoroheptanoic acid



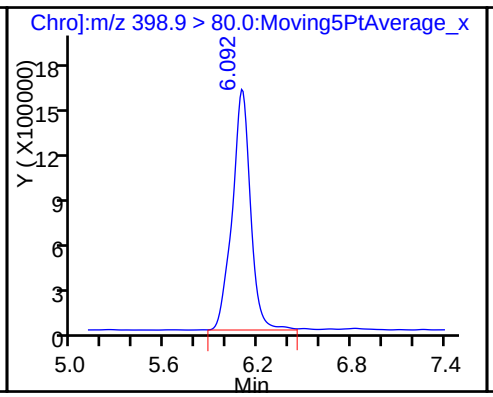
8 Perfluoroheptanoic acid



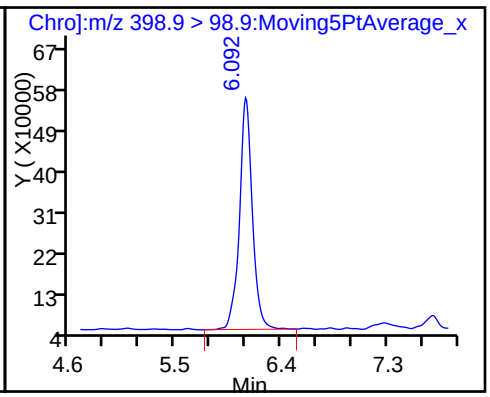
* 9 18O2 PFHxS (IS)



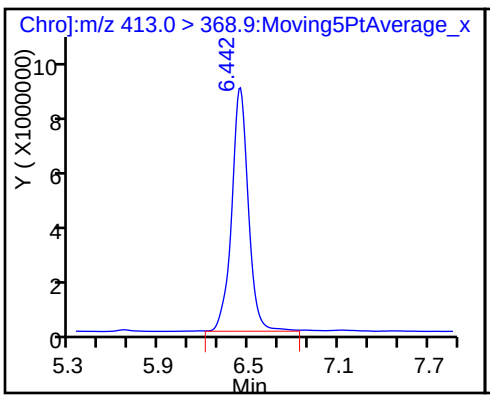
10 Perfluorohexane Sulfonate



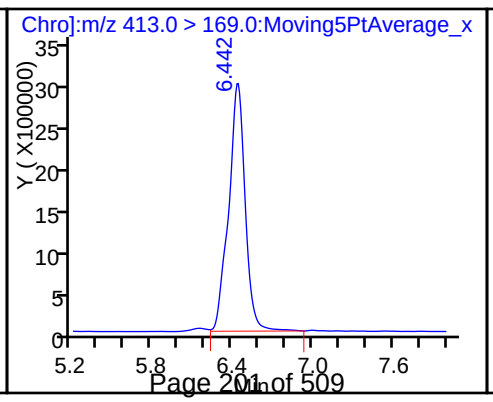
10 Perfluorohexane Sulfonate



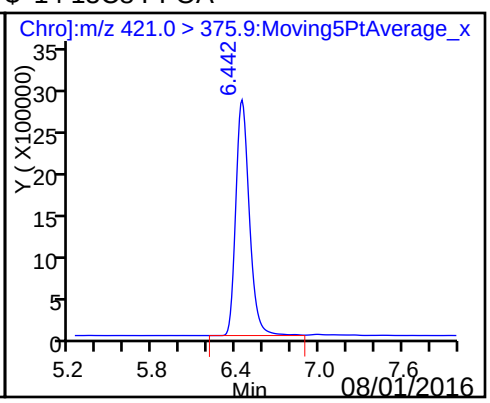
16 Perfluorooctanoic acid



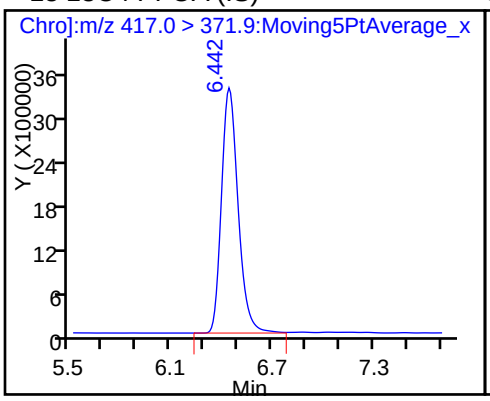
16 Perfluorooctanoic acid



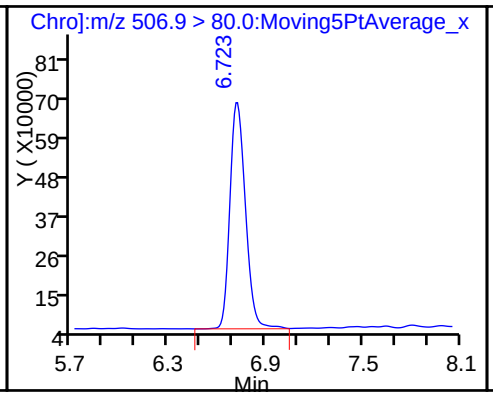
$ 14 13C8 PFOA



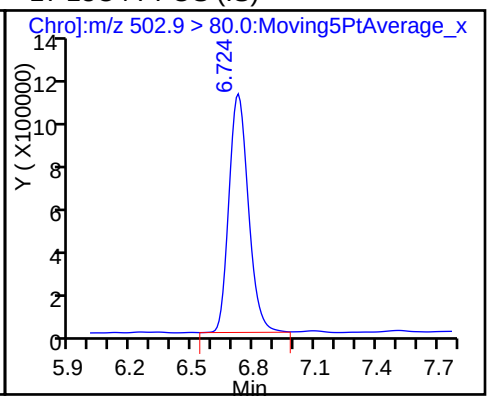
* 15 13C4 PFOA (IS)



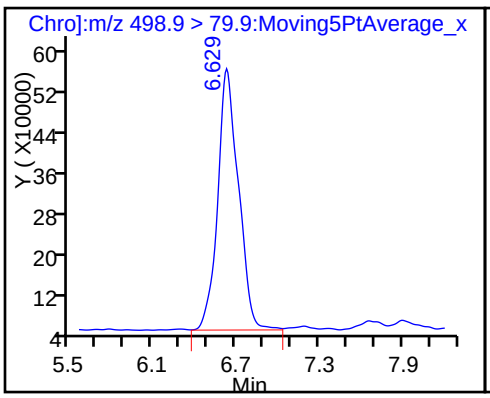
$ 18 13C8 PFOS



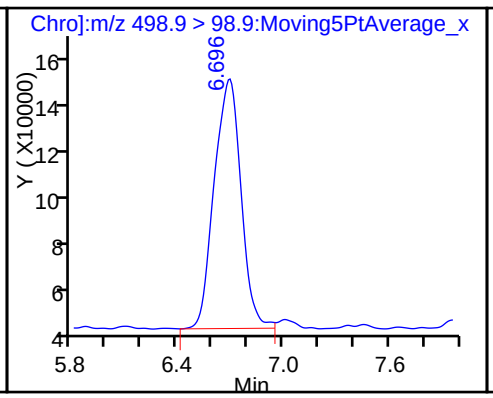
* 17 13C4 PFOS (IS)



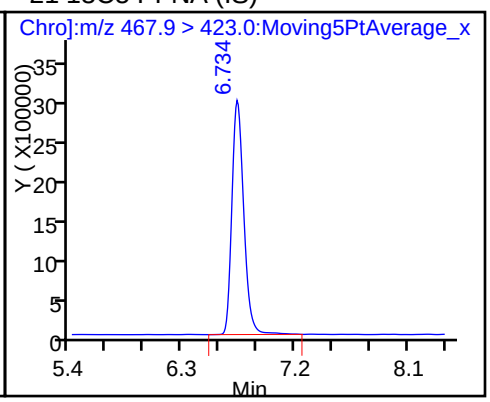
19 Perfluorooctane sulfonic acid



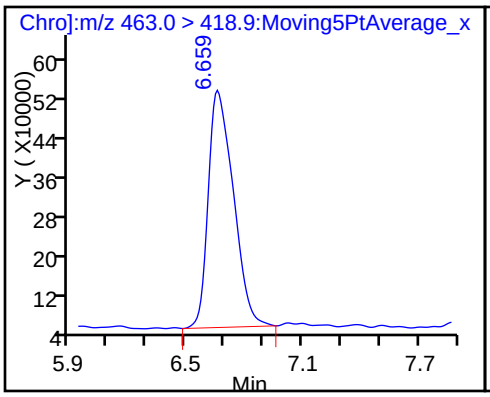
19 Perfluorooctane sulfonic acid



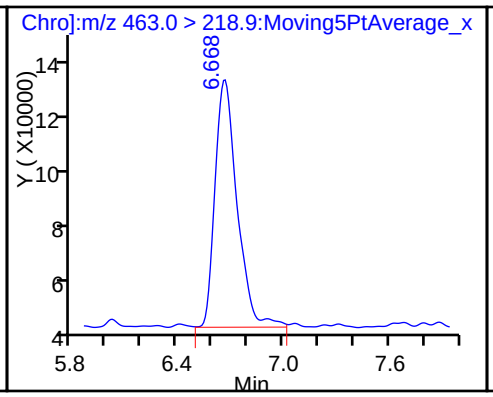
* 21 13C5 PFNA (IS)



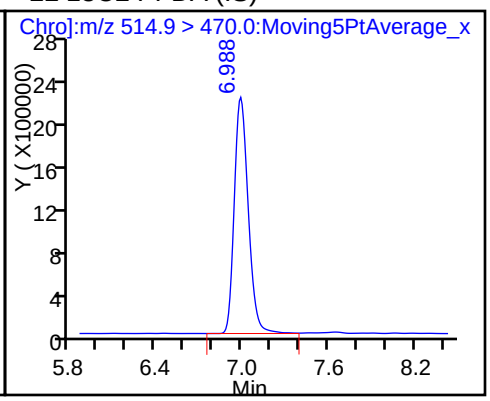
20 Perfluorononanoic acid



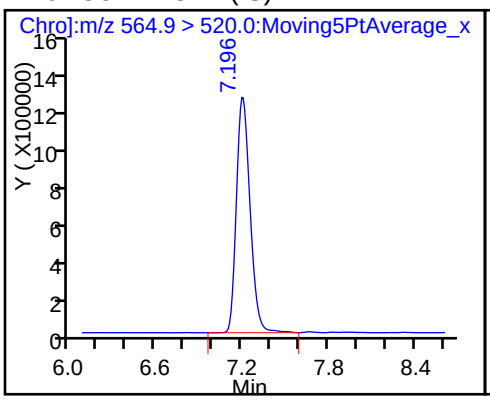
20 Perfluorononanoic acid



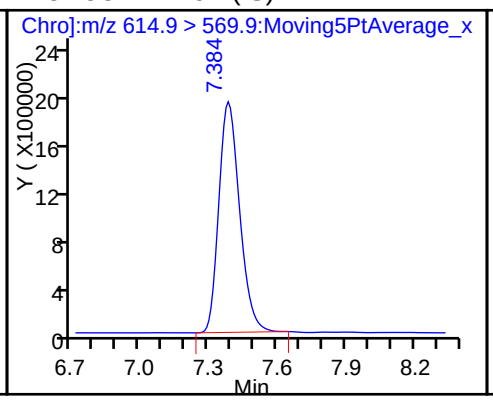
* 22 13C2 PFDA (IS)



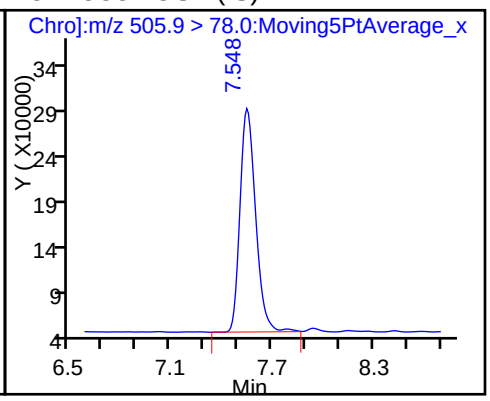
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



Manual Integration/User Assign Peak Report

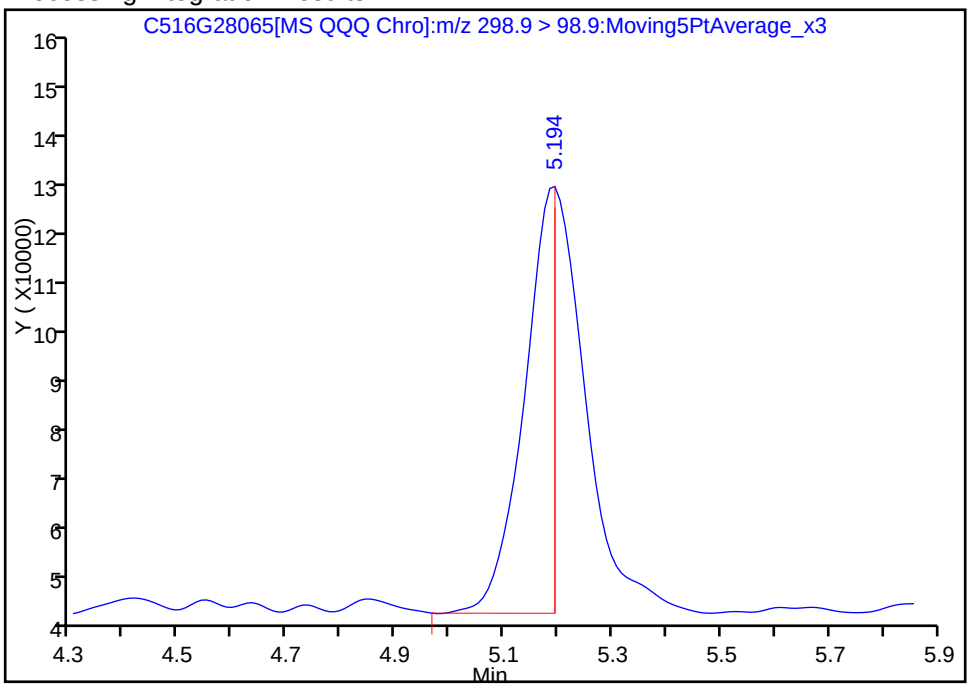
TestAmerica Denver

Data File:	\\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28065.d				
Injection Date:	28-Jul-2016 21:25:54	Instrument ID:	LC_LCMS5		
Lims ID:	280-85298-A-11-A	Lab Sample ID:	280-85298-11		
Client ID:	DBF-MW-4				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	21
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		
Column:		Detector	MS QQQ		

4 Perfluorobutane Sulfonate, CAS: 29420-43-3

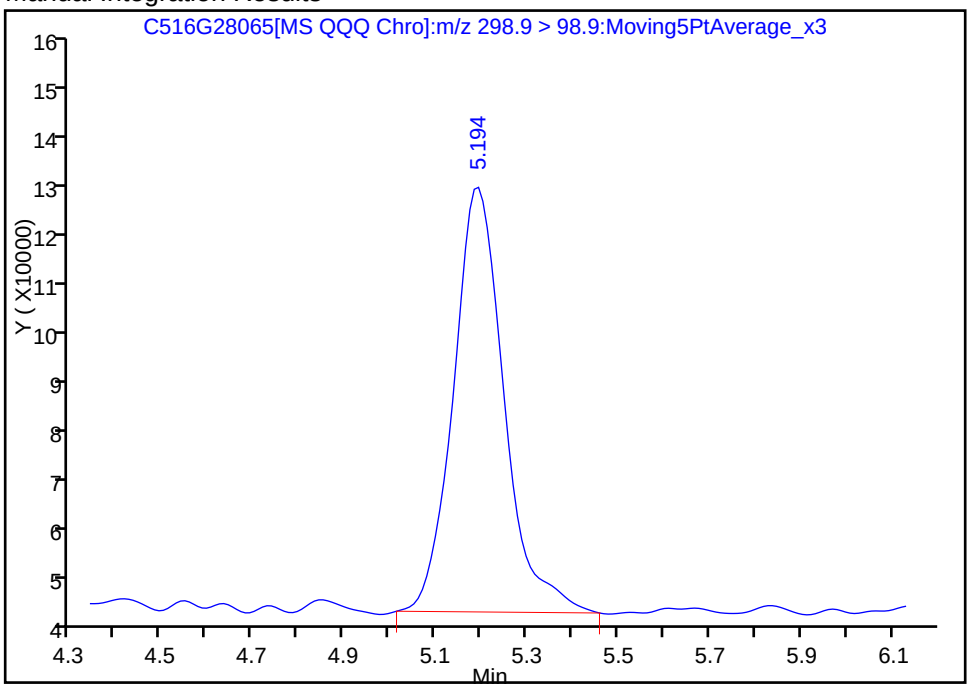
Processing Integration Results

RT: 5.19
Area: 306594
Amount: 1.970277
Amount Units: ug/L



Manual Integration Results

RT: 5.19
Area: 620066
Amount: 1.970277
Amount Units: ug/L



Reviewer: tinkhams, 29-Jul-2016 15:57:18
Audit Action: Manually Integrated
Audit Reason: Split Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: FB-7 | Lab Sample ID: 280-85298-12

Matrix: Water | Lab File ID: PC516G20064.d

Analysis Method: DV-LC-0012 | Date Collected: 07/06/2016 11:54

Extraction Method: 3535 | Date Extracted: 07/16/2016 07:25

Sample wt/vol: 248.6(mL) | Date Analyzed: 07/20/2016 18:52

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 334502 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.0083	U *	0.020	0.0083
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.013	U	0.030	0.013
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.0070	U	0.030	0.0070
375-95-1	Perfluorononanoic acid (PFNA)	0.017	U	0.040	0.017
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.013	U	0.030	0.013
335-67-1	Perfluorooctanoic acid (PFOA)	0.0098	U	0.020	0.0098

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	104		60-155
STL01054	13C8 PFOS	104		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160721-49036.b\PC516G20064.d
Lims ID: 280-85298-B-12-A Lab Sample ID: 280-85298-12
Client ID: FB-7
Sample Type: Client
Inject. Date: 20-Jul-2016 18:52:37 ALS Bottle#: 0 Worklist Smp#: 5
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85298-B-12-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160721-49036.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 21-Jul-2016 08:33:16 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK004

First Level Reviewer: meyera Date: 21-Jul-2016 08:16:16

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	3.916	4.124	-0.208		35068857	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.279				ND			
298.9 > 98.9		5.279							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.648	5.714	-0.066		22587385	10.0			
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.083	6.139	-0.056		2717274	9.46			
10 Perfluorohexane Sulfonate									
398.9 > 80.0		6.130				ND			
398.9 > 98.9		6.130							
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.036	6.131	-0.095	0.938	633271	0.1756			
363.0 > 168.9	6.083	6.131	-0.048	0.946	107235		5.91(3.35-6.23)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.423	6.470	-0.047	0.998	29464005	10.4			
16 Perfluorooctanoic acid									
413.0 > 368.9		6.471				ND			
413.0 > 169.0		6.471							
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.432	6.470	-0.038		34949895	10.0			
$ 18 13C8 PFOS									
506.9 > 80.0	6.714	6.742	-0.028	1.001	6174555	9.91			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.705	6.743	-0.038		9743804	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9		6.743				ND			
498.9 > 98.9		6.743							

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.725	6.763	-0.038		27469496	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9		6.763				ND			
463.0 > 218.9		6.763							
* 22 13C2 PFDA (IS)									
514.9 > 470.0	6.978	7.007	-0.029		28523126	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.186	7.215	-0.029		17064608	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.375	7.393	-0.018		31436445	10.0			
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.510	7.519	-0.009		800759	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

s - Failed ISTD Recovery Test

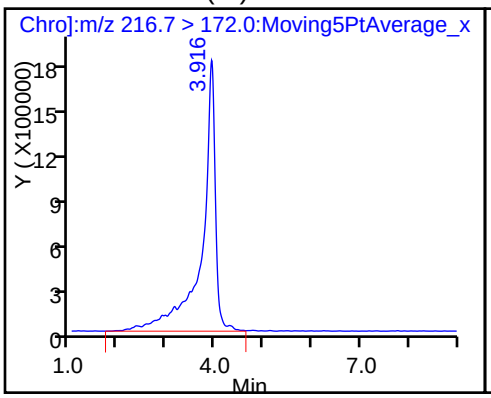
Report Date: 21-Jul-2016 08:33:26 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

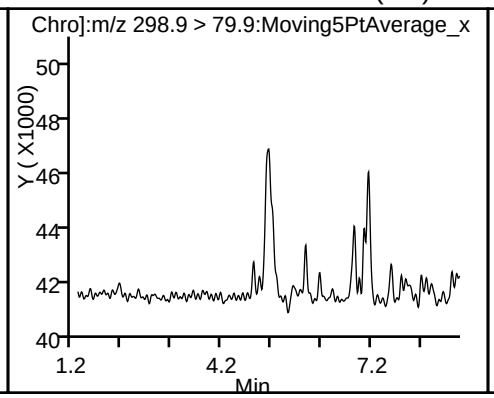
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160721-49036.b\PC516G20064.d

Injection Date:	20-Jul-2016 18:52:37	Instrument ID:	LC_LCMS5		
Lims ID:	280-85298-B-12-A	Lab Sample ID:	280-85298-12		
Client ID:	FB-7				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	5
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

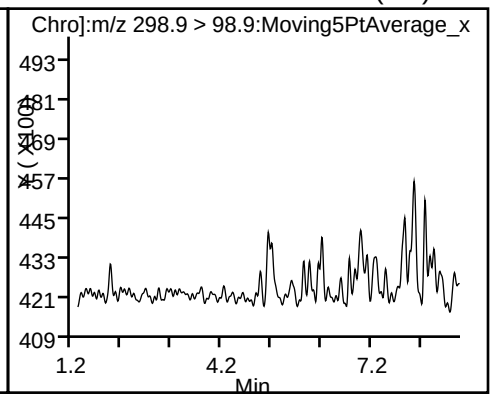
* 1 13C4 PFBA (IS)



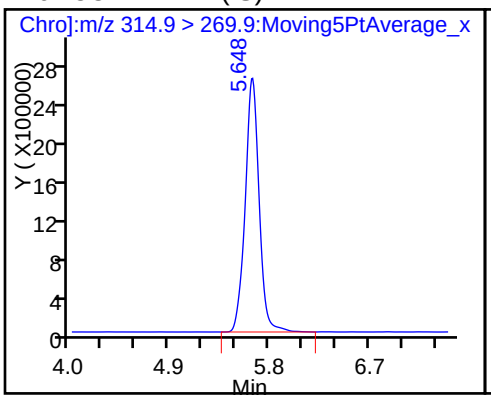
4 Perfluorobutane Sulfonate (ND)



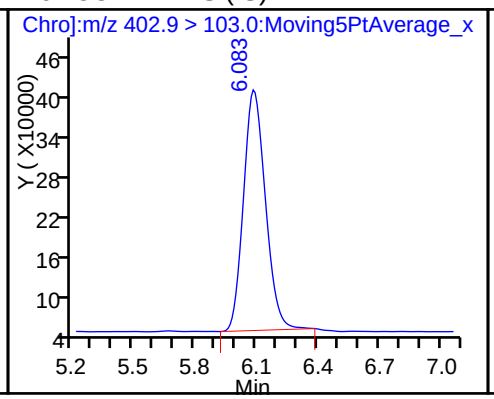
4 Perfluorobutane Sulfonate (ND)



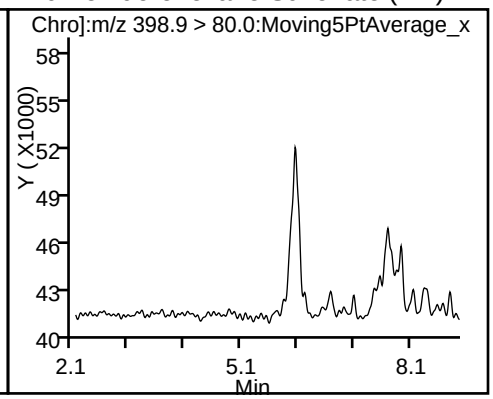
* 6 13C2 PFHxA (IS)



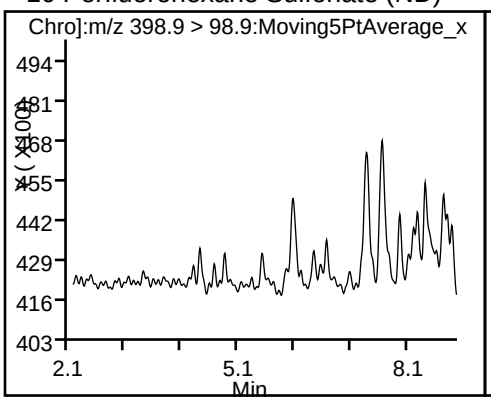
* 9 18O2 PFHxS (IS)



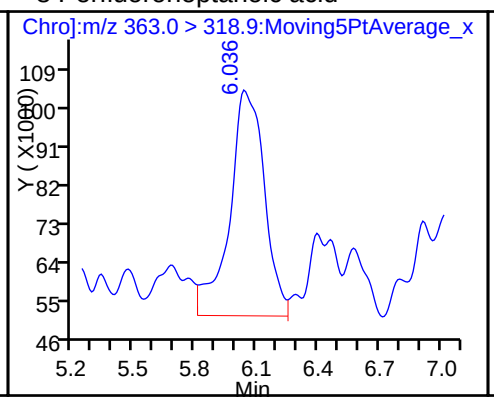
10 Perfluorohexane Sulfonate (ND)



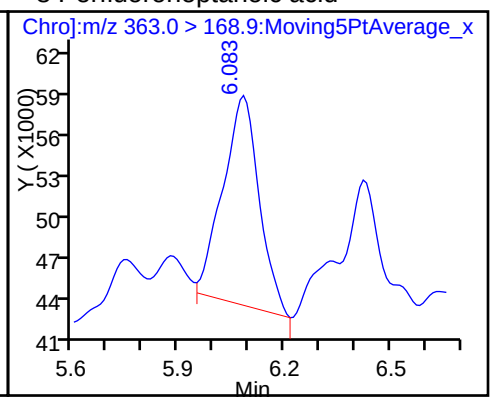
10 Perfluorohexane Sulfonate (ND)



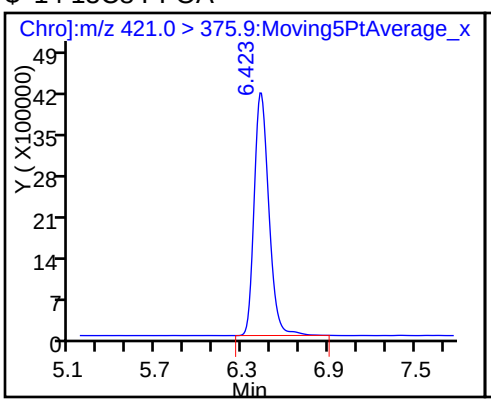
8 Perfluoroheptanoic acid



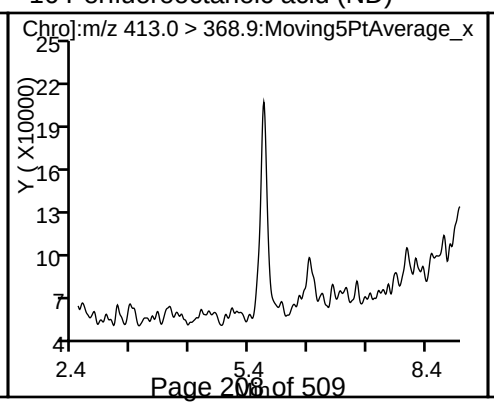
8 Perfluoroheptanoic acid



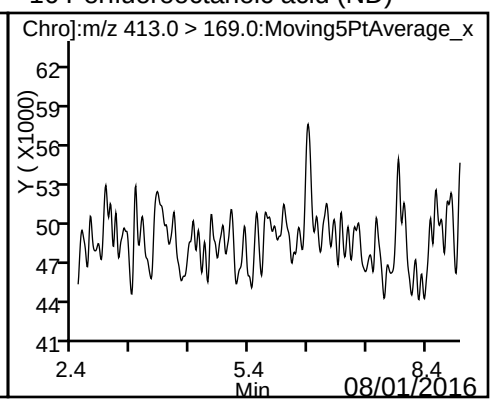
$ 14 13C8 PFOA



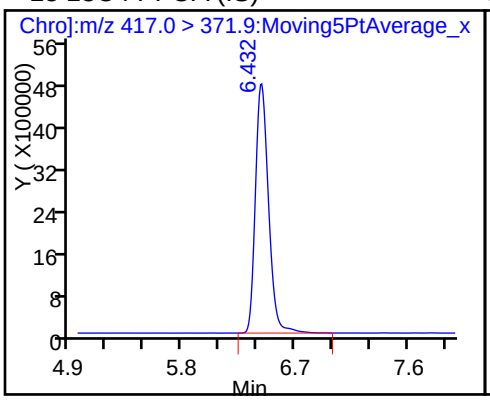
16 Perfluorooctanoic acid (ND)



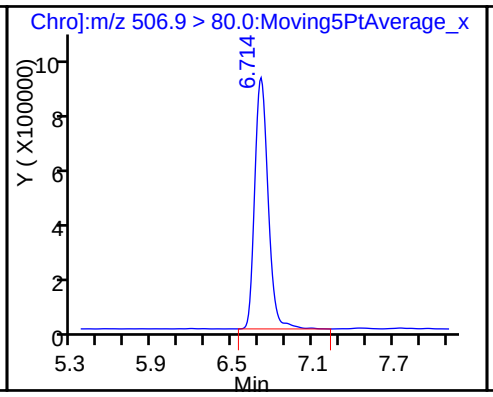
16 Perfluorooctanoic acid (ND)



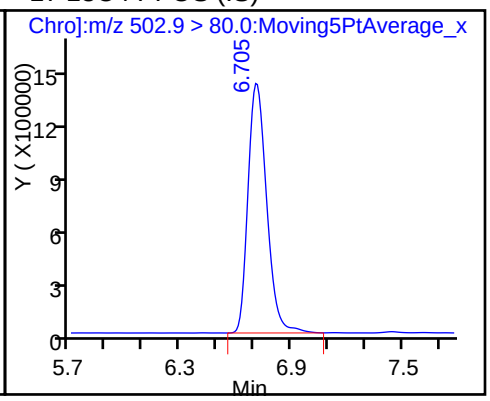
* 15 13C4 PFOA (IS)



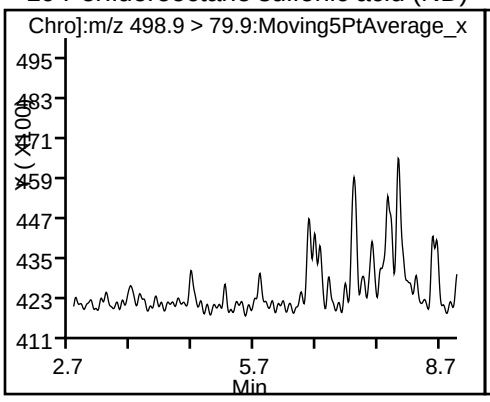
$ 18 13C8 PFOS



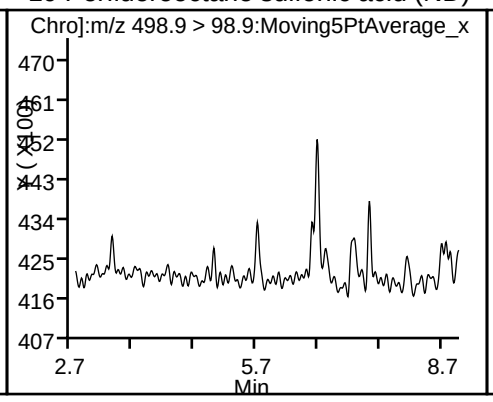
* 17 13C4 PFOS (IS)



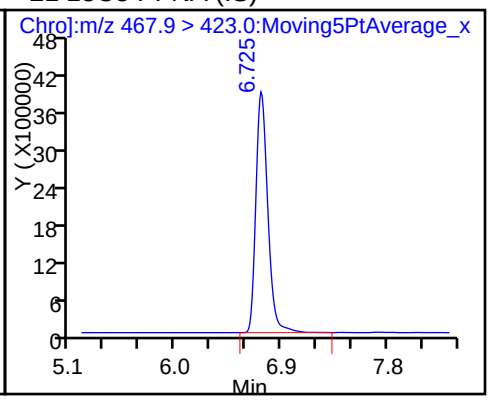
19 Perfluorooctane sulfonic acid (ND)



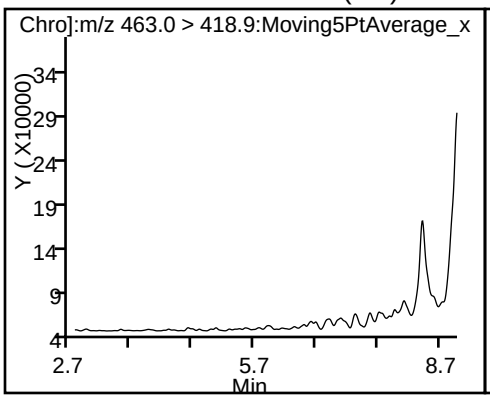
19 Perfluorooctane sulfonic acid (ND)



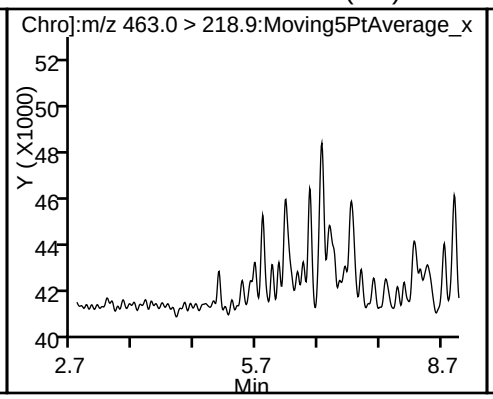
* 21 13C5 PFNA (IS)



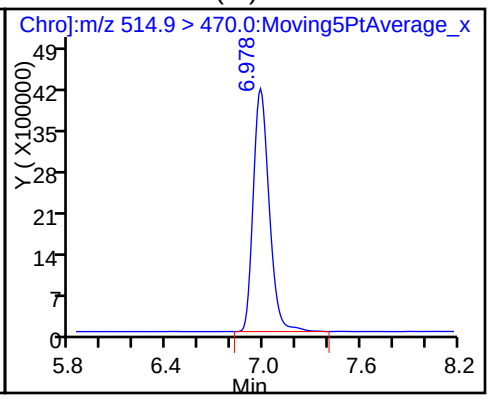
20 Perfluorononanoic acid (ND)



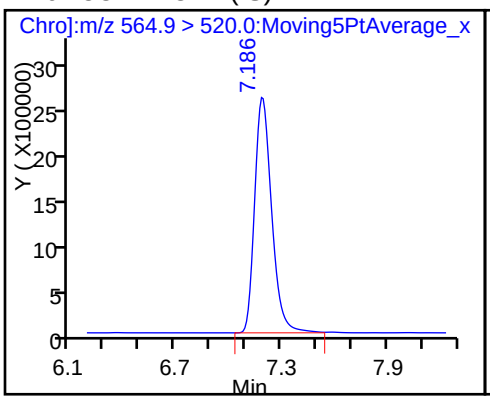
20 Perfluorononanoic acid (ND)



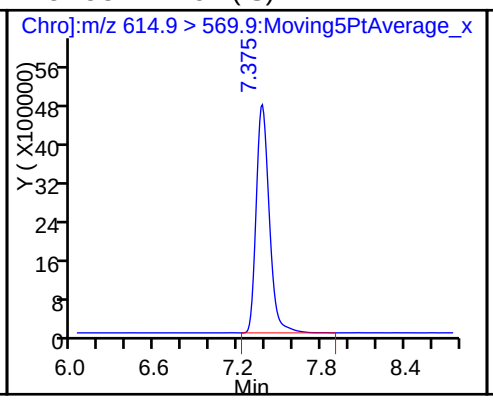
* 22 13C2 PFDA (IS)



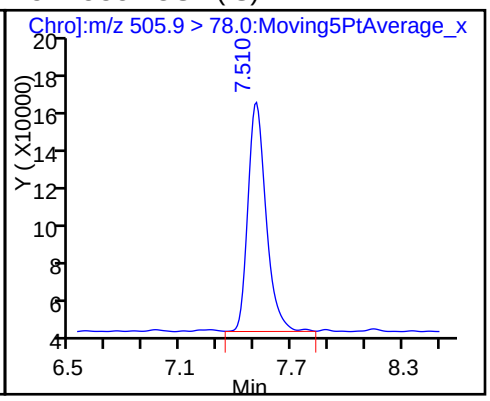
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: FB-7 RE | Lab Sample ID: 280-85298-12 RE

Matrix: Water | Lab File ID: PC516G28066.d

Analysis Method: DV-LC-0012 | Date Collected: 07/06/2016 11:54

Extraction Method: 3535 | Date Extracted: 07/25/2016 10:50

Sample wt/vol: 238.2(mL) | Date Analyzed: 07/28/2016 21:38

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 335652 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	*Perfluorobutane Sulfonate (PFBS)*	*0.0086*	*U H*	*0.021*	*0.0086*
375-85-9	*Perfluoroheptanoic acid (PFHpA)*	*0.014*	*U H*	*0.031*	*0.014*
108427-53-8	*Perfluorohexane Sulfonate (PFHxS)*	*0.0073*	*U H*	*0.031*	*0.0073*
375-95-1	*Perfluorononanoic acid (PFNA)*	*0.018*	*U H*	*0.042*	*0.018*
1763-23-1	*Perfluorooctanesulfonic acid (PFOS)*	*0.014*	*U H*	*0.031*	*0.014*
335-67-1	*Perfluorooctanoic acid (PFOA)*	*0.010*	*U H*	*0.021*	*0.010*

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	104		60-155
STL01054	13C8 PFOS	100		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28066.d
Lims ID: 280-85298-A-12-A Lab Sample ID: 280-85298-12
Client ID: FB-7
Sample Type: Client
Inject. Date: 28-Jul-2016 21:38:11 ALS Bottle#: 0 Worklist Smp#: 22
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85298-A-12-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 29-Jul-2016 10:37:26 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK010

First Level Reviewer: meyera Date: 29-Jul-2016 09:49:50

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	3.944	4.029	-0.085		19962980	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.241				ND			
298.9 > 98.9		5.241							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.657	5.695	-0.038		15709630	10.0			
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.112				ND			
363.0 > 168.9		6.112							
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.102	6.120	-0.018		1953714	9.46			
10 Perfluorohexane Sulfonate									
398.9 > 80.0		6.130				ND			
398.9 > 98.9		6.130							
$ 14 13C8 PFOA									
421.0 > 375.9	6.442	6.470	-0.028	1.000	19355603	10.2			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.442	6.461	-0.019		23559339	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9		6.461				ND			
413.0 > 169.0		6.461							
$ 18 13C8 PFOS									
506.9 > 80.0	6.714	6.742	-0.028	1.000	4578478	9.26			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.714	6.743	-0.029		7734029	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9		6.743				ND			
498.9 > 98.9		6.743							

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.734	6.753	-0.019		19303632	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9		6.753				ND			
463.0 > 218.9		6.753							
* 22 13C2 PFDA (IS)									
514.9 > 470.0	6.978	7.007	-0.029		19667318	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.196	7.215	-0.019		12833362	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.375	7.393	-0.018		21050227	10.0			
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.548	7.557	-0.009		637089	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

s - Failed ISTD Recovery Test

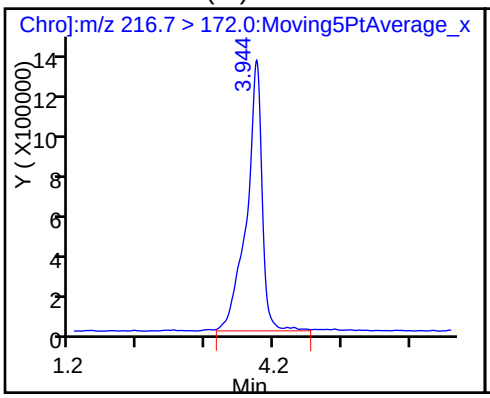
Report Date: 29-Jul-2016 10:37:55 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

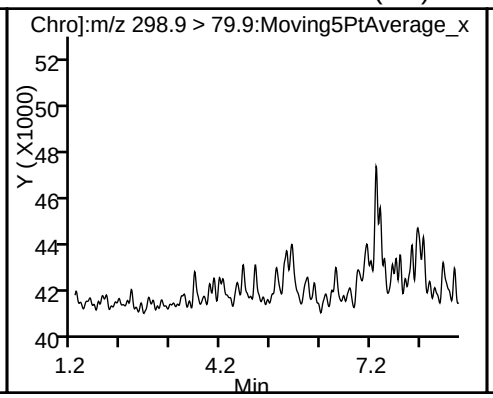
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28066.d

Injection Date:	28-Jul-2016 21:38:11	Instrument ID:	LC_LCMS5		
Lims ID:	280-85298-A-12-A	Lab Sample ID:	280-85298-12		
Client ID:	FB-7				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	22
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

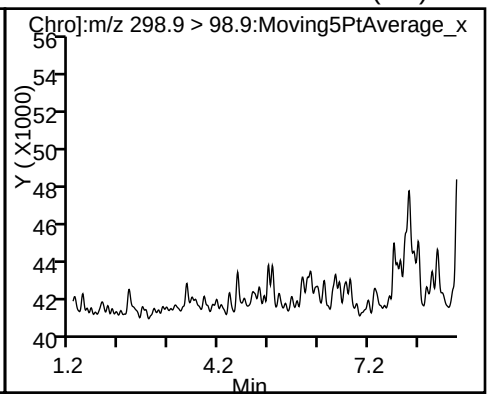
* 1 13C4 PFBA (IS)



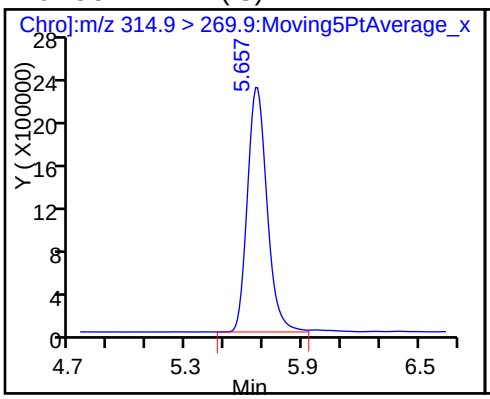
4 Perfluorobutane Sulfonate (ND)



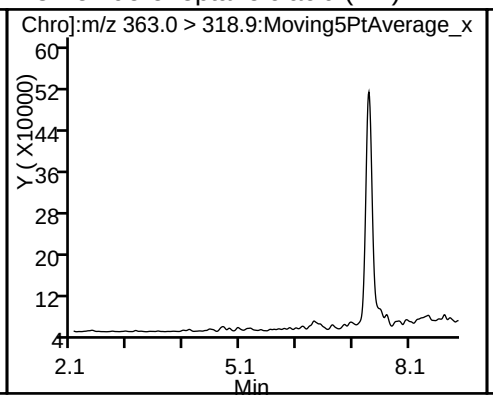
4 Perfluorobutane Sulfonate (ND)



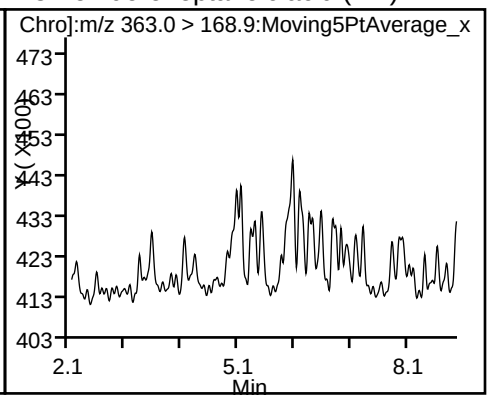
* 6 13C2 PFHxA (IS)



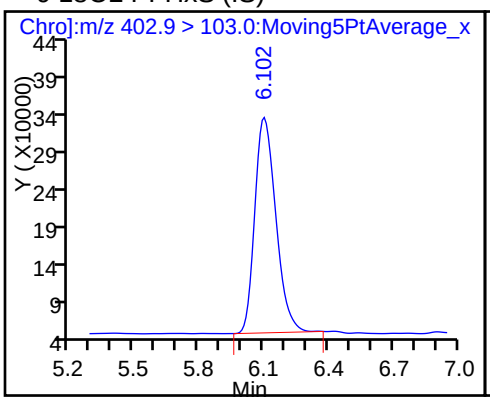
8 Perfluoroheptanoic acid (ND)



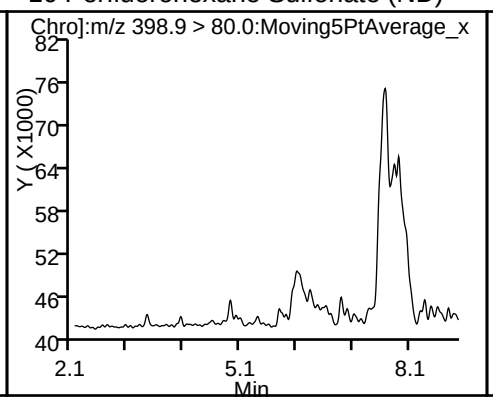
8 Perfluoroheptanoic acid (ND)



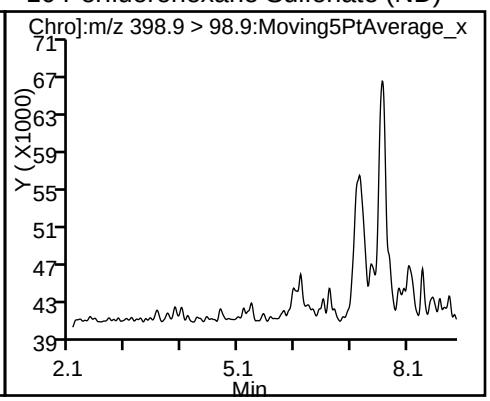
* 9 18O2 PFHxS (IS)



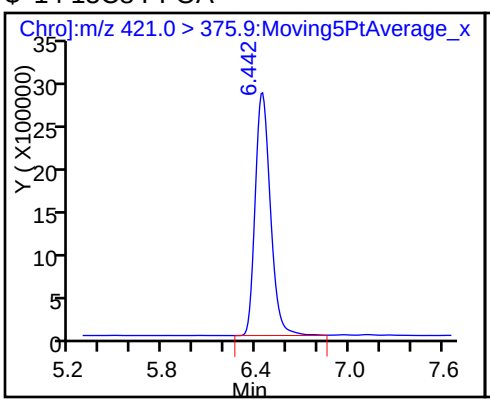
10 Perfluorohexane Sulfonate (ND)



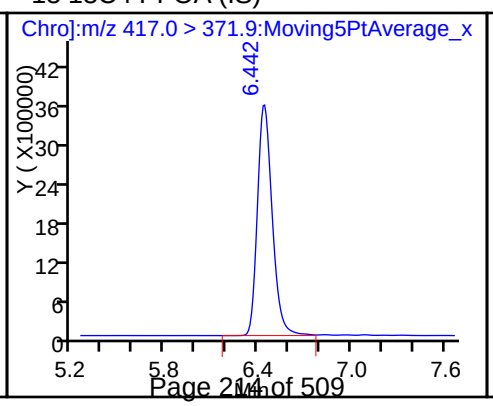
10 Perfluorohexane Sulfonate (ND)



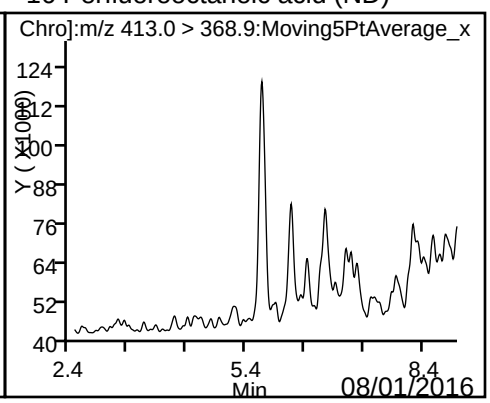
$ 14 13C8 PFOA



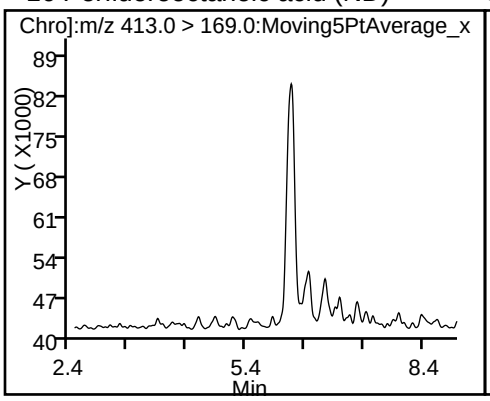
* 15 13C4 PFOA (IS)



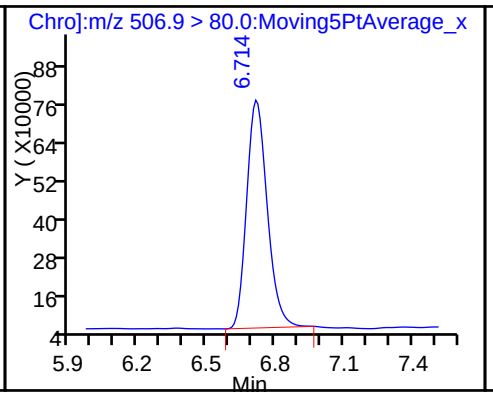
16 Perfluorooctanoic acid (ND)



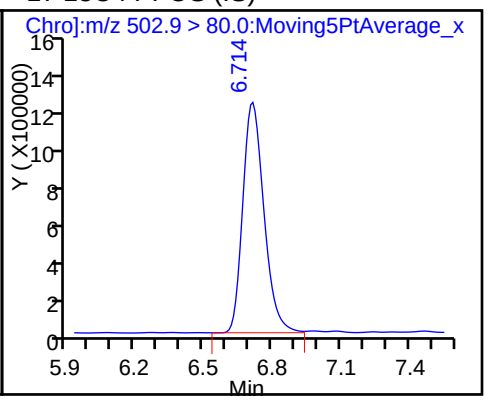
16 Perfluorooctanoic acid (ND)



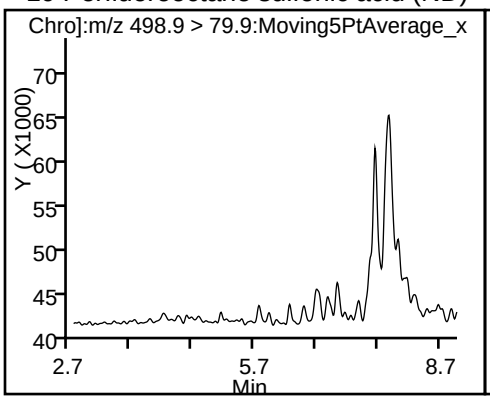
$ 18 13C8 PFOS



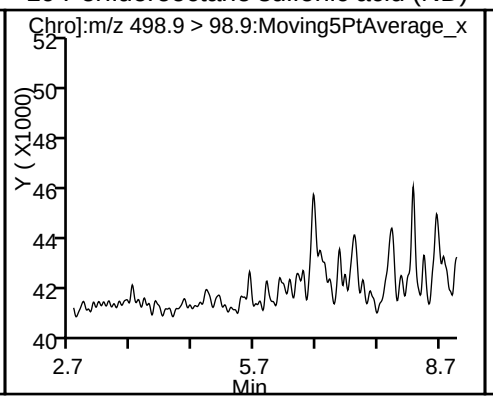
* 17 13C4 PFOS (IS)



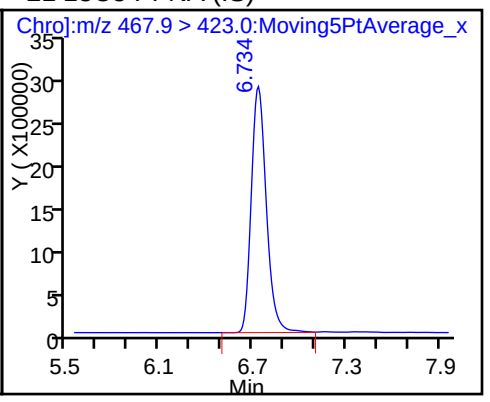
19 Perfluorooctane sulfonic acid (ND)



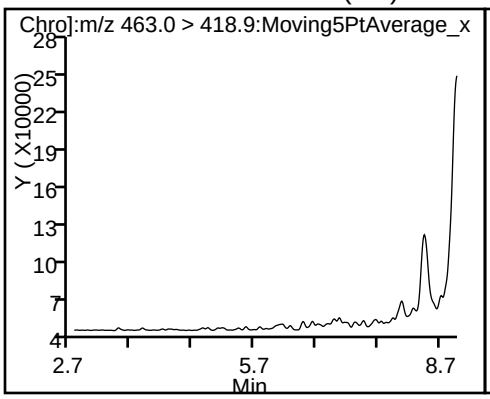
19 Perfluorooctane sulfonic acid (ND)



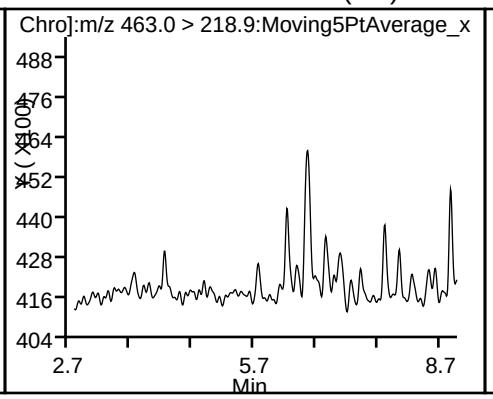
* 21 13C5 PFNA (IS)



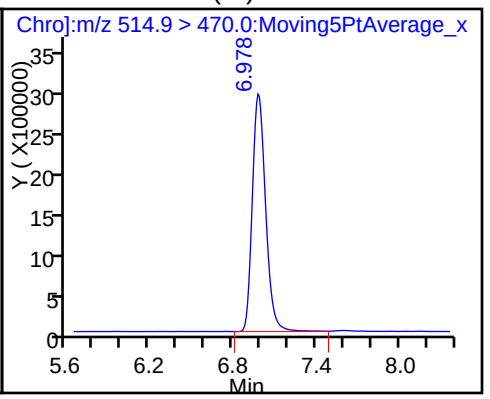
20 Perfluorononanoic acid (ND)



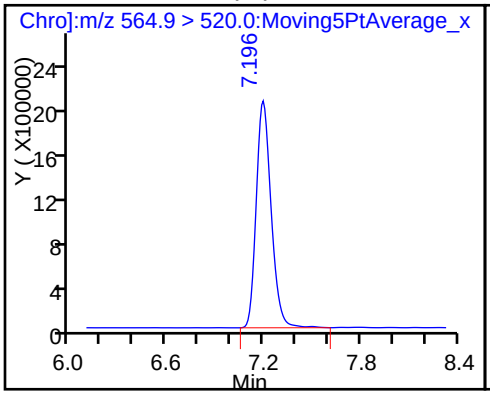
20 Perfluorononanoic acid (ND)



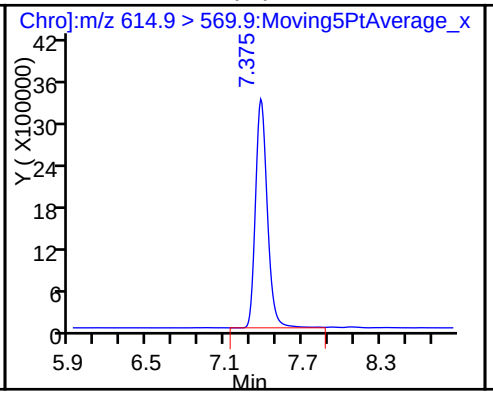
* 22 13C2 PFDA (IS)



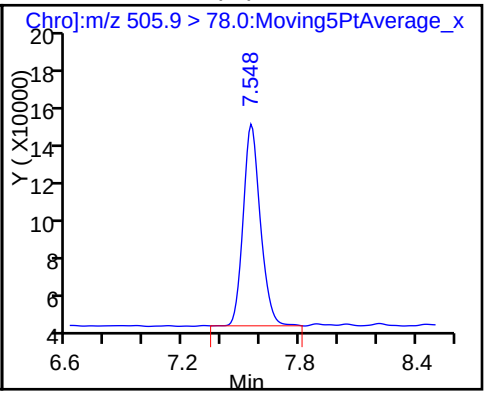
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: DBF-MW-5 | Lab Sample ID: 280-85298-13

Matrix: Water | Lab File ID: PC516G20065.d

Analysis Method: DV-LC-0012 | Date Collected: 07/06/2016 13:35

Extraction Method: 3535 | Date Extracted: 07/16/2016 07:25

Sample wt/vol: 273.5(mL) | Date Analyzed: 07/20/2016 19:04

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 334502 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.0075	U *	0.018	0.0075
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.034		0.027	0.012
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.0064	U	0.027	0.0064
375-95-1	Perfluorononanoic acid (PFNA)	0.016	U	0.037	0.016
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.012	U	0.027	0.012
335-67-1	Perfluorooctanoic acid (PFOA)	0.0089	U	0.018	0.0089

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	105		60-155
STL01054	13C8 PFOS	113		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160721-49036.b\PC516G20065.d
Lims ID: 280-85298-A-13-A Lab Sample ID: 280-85298-13
Client ID: DBF-MW-5
Sample Type: Client
Inject. Date: 20-Jul-2016 19:04:56 ALS Bottle#: 0 Worklist Smp#: 6
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85298-A-13-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160721-49036.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 21-Jul-2016 08:33:16 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK004

First Level Reviewer: meyera Date: 21-Jul-2016 08:16:32

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	3.906	4.124	-0.218		34859309	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.279				ND			
298.9 > 98.9		5.279							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.648	5.714	-0.066		22062410	10.0			
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.092	6.139	-0.047		2659528	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.083	6.130	-0.047	0.998	183607	0.0844			R
398.9 > 98.9	6.064	6.130	-0.066	0.995	74292		2.47(1.30-2.41)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.083	6.131	-0.048	0.944	5415712	1.88			
363.0 > 168.9	6.083	6.131	-0.048	0.944	1555998		3.48(3.35-6.23)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.442	6.470	-0.028	1.000	27682254	10.5			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.442	6.471	-0.029	1.000	932900	0.2043			
413.0 > 169.0	6.423	6.471	-0.048	0.997	298818		3.12(2.86-5.31)		
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.442	6.470	-0.028		32673903	10.0			
$ 18 13C8 PFOS									
506.9 > 80.0	6.714	6.742	-0.028	1.001	5063576	10.8			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.705	6.743	-0.038		7314444	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9		6.743				ND			
498.9 > 98.9		6.743							

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.725	6.763	-0.038		24799135	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9		6.763				ND			
463.0 > 218.9		6.763							
* 22 13C2 PFDA (IS)									
514.9 > 470.0	6.978	7.007	-0.029		21762251	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.186	7.215	-0.029		11159393	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.365	7.393	-0.028		16880448	10.0			
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.510	7.519	-0.009		1089863	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND
R - Failed Signal Ratio Test
s - Failed ISTD Recovery Test

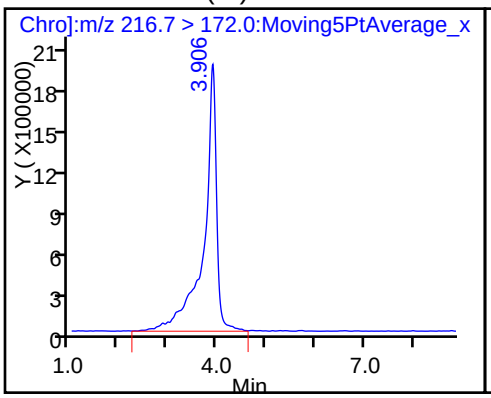
Report Date: 21-Jul-2016 08:33:30 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

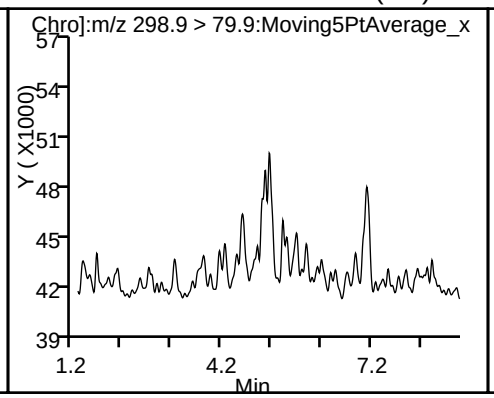
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160721-49036.b\PC516G20065.d

Injection Date:	20-Jul-2016 19:04:56	Instrument ID:	LC_LCMS5		
Lims ID:	280-85298-A-13-A	Lab Sample ID:	280-85298-13		
Client ID:	DBF-MW-5				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	6
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

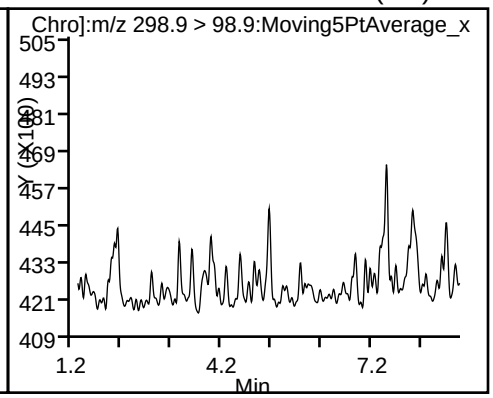
* 1 13C4 PFBA (IS)



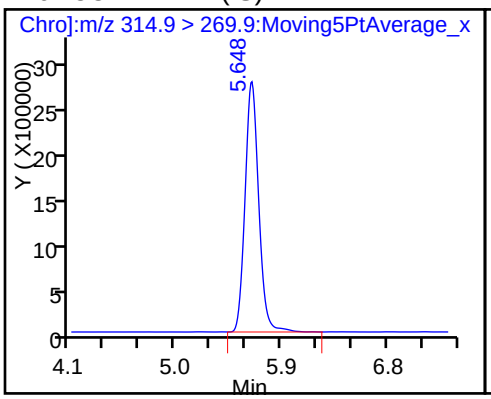
4 Perfluorobutane Sulfonate (ND)



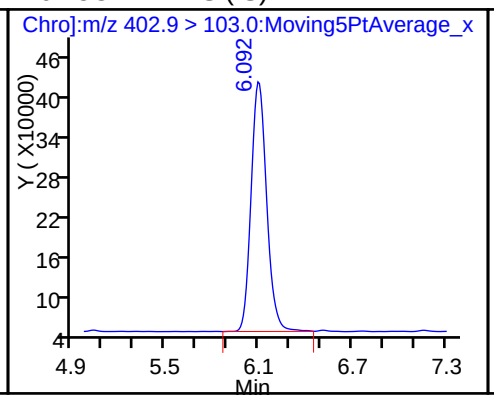
4 Perfluorobutane Sulfonate (ND)



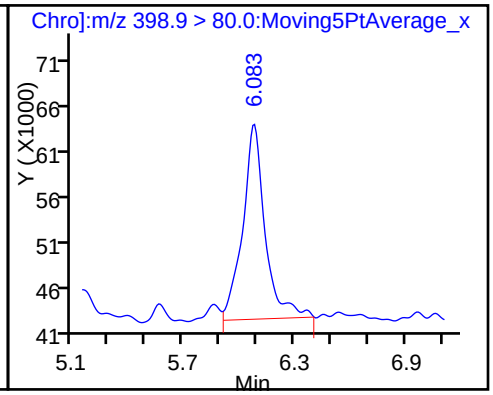
* 6 13C2 PFHxA (IS)



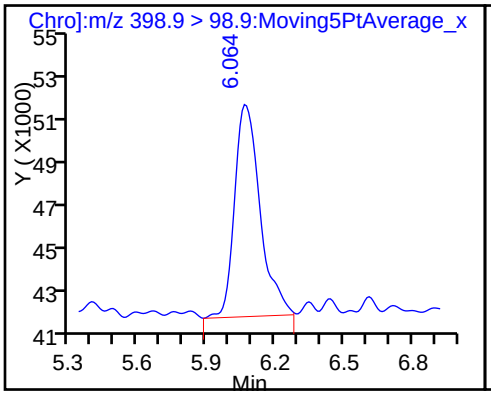
* 9 18O2 PFHxS (IS)



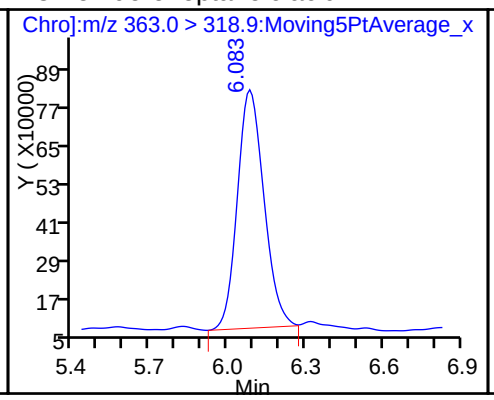
10 Perfluorohexane Sulfonate



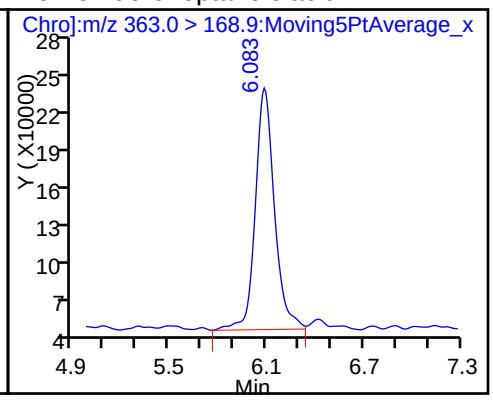
10 Perfluorohexane Sulfonate



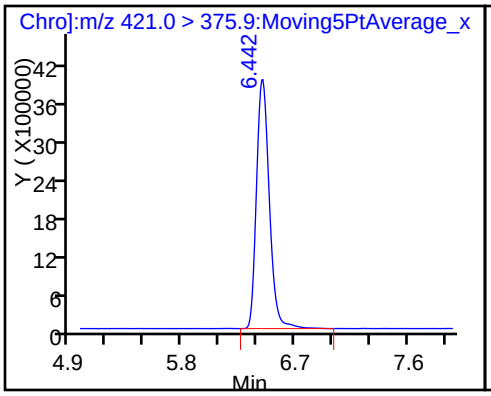
8 Perfluoroheptanoic acid



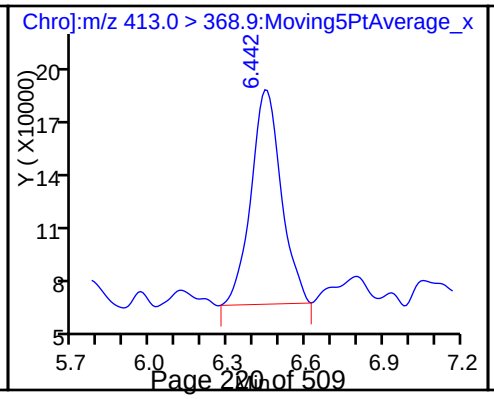
8 Perfluoroheptanoic acid



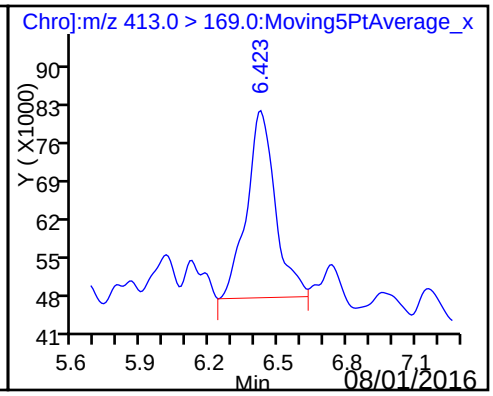
$ 14 13C8 PFOA



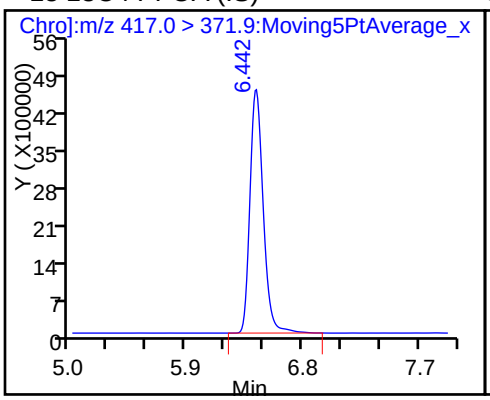
16 Perfluorooctanoic acid



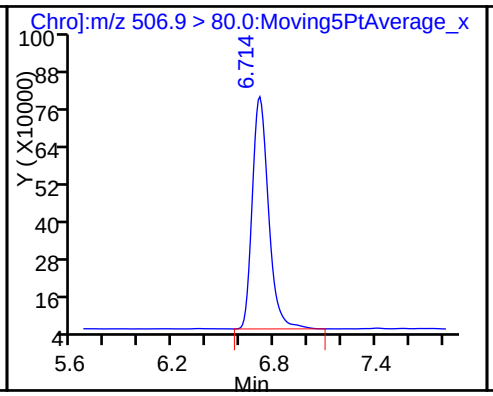
16 Perfluorooctanoic acid



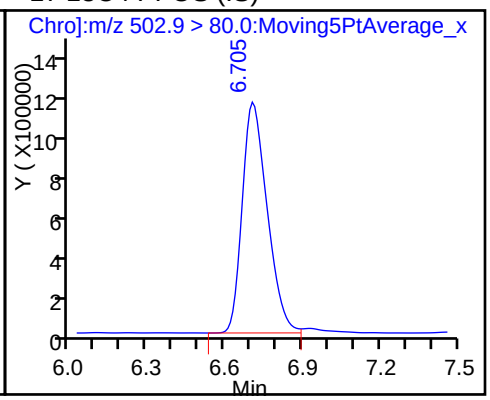
* 15 13C4 PFOA (IS)



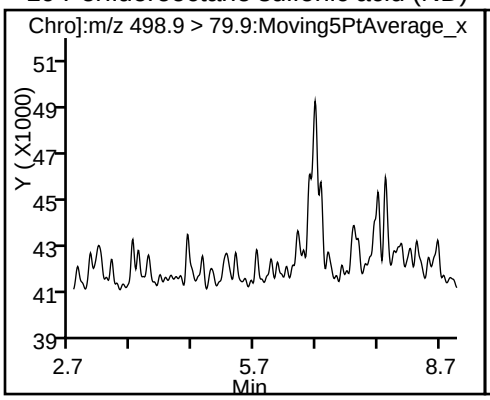
$ 18 13C8 PFOS



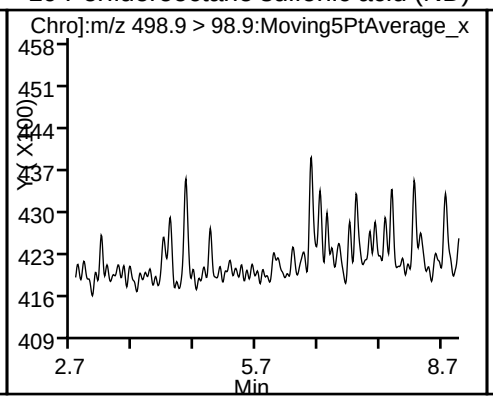
* 17 13C4 PFOS (IS)



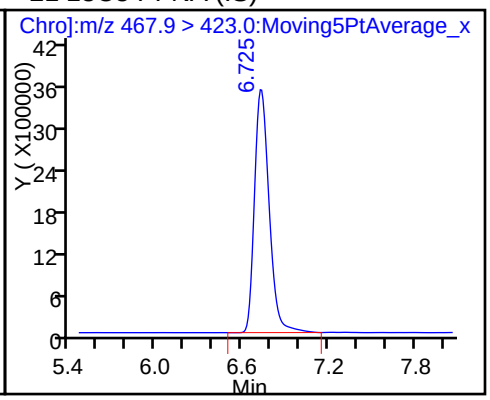
19 Perfluorooctane sulfonic acid (ND)



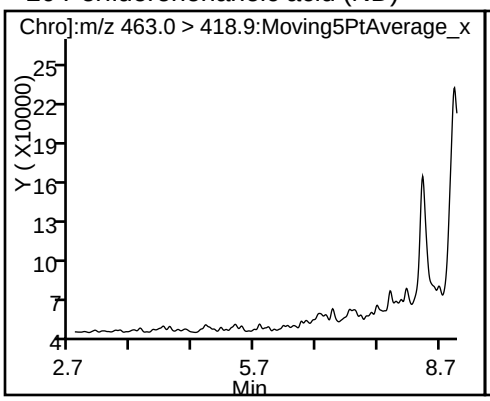
19 Perfluorooctane sulfonic acid (ND)



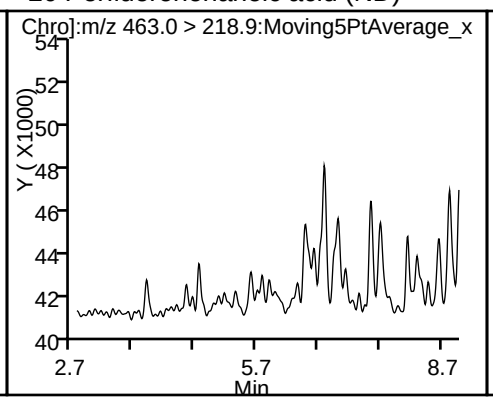
* 21 13C5 PFNA (IS)



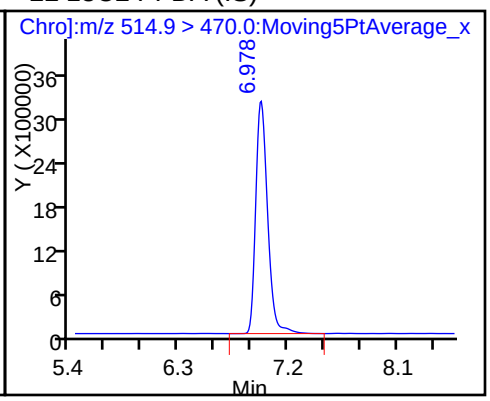
20 Perfluorononanoic acid (ND)



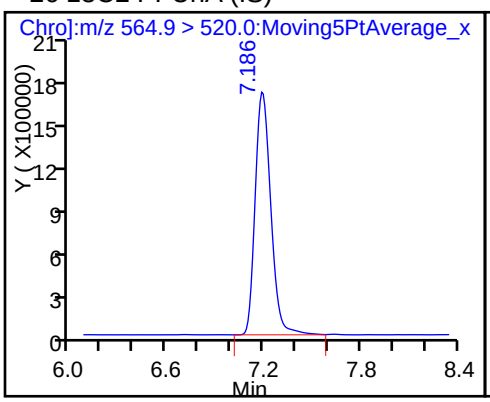
20 Perfluorononanoic acid (ND)



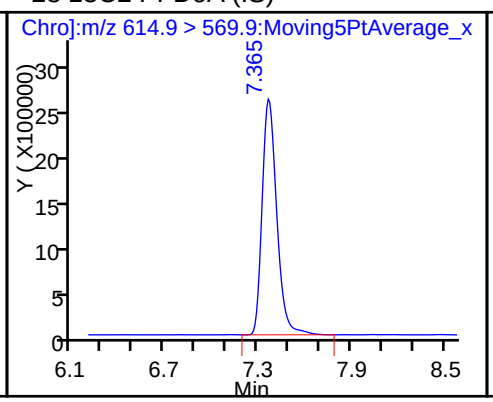
* 22 13C2 PFDA (IS)



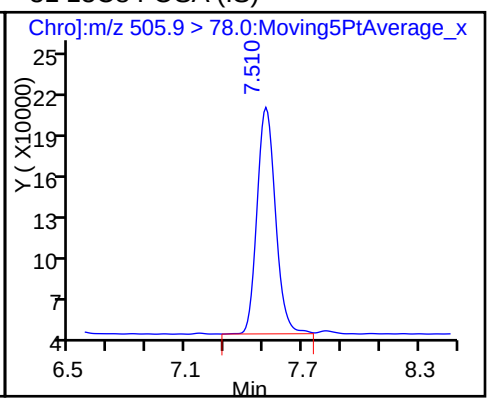
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: DBF-MW-5 RE | Lab Sample ID: 280-85298-13 RE

Matrix: Water | Lab File ID: PC516G28068.d

Analysis Method: DV-LC-0012 | Date Collected: 07/06/2016 13:35

Extraction Method: 3535 | Date Extracted: 07/25/2016 10:50

Sample wt/vol: 259.9(mL) | Date Analyzed: 07/28/2016 22:02

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 335652 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	*Perfluorobutane Sulfonate (PFBS)*	*0.0079*	*U H*	*0.019*	*0.0079*
375-85-9	*Perfluoroheptanoic acid (PFHpA)*	*0.013*	*U H*	*0.029*	*0.013*
108427-53-8	*Perfluorohexane Sulfonate (PFHxS)*	*0.0067*	*U H*	*0.029*	*0.0067*
375-95-1	*Perfluorononanoic acid (PFNA)*	*0.017*	*U H*	*0.038*	*0.017*
1763-23-1	*Perfluorooctanesulfonic acid (PFOS)*	*0.013*	*U H*	*0.029*	*0.013*
335-67-1	*Perfluorooctanoic acid (PFOA)*	*0.0094*	*U H*	*0.019*	*0.0094*

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	107		60-155
STL01054	13C8 PFOS	103		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28068.d
Lims ID: 280-85298-B-13-A Lab Sample ID: 280-85298-13
Client ID: DBF-MW-5
Sample Type: Client
Inject. Date: 28-Jul-2016 22:02:56 ALS Bottle#: 0 Worklist Smp#: 24
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85298-B-13-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 29-Jul-2016 10:37:58 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK010

First Level Reviewer: meyera Date: 29-Jul-2016 09:50:30

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.020	4.020	0.0		21774643	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.213				ND			
298.9 > 98.9		5.213							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.676	5.676	0.0		16808904	10.0			
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.102				ND			
363.0 > 168.9		6.102							
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.102	6.111	-0.009		2100327	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.102	6.111	-0.009	1.000	168100	0.1115			R
398.9 > 98.9	6.149	6.111	0.038	1.008	19018		8.84(1.30-2.41)		
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.442	6.451	-0.009		24725762	10.0			
16 Perfluorooctanoic acid									R
413.0 > 368.9	6.442	6.452	-0.010	1.000	644523	0.1803			R
413.0 > 169.0	6.423	6.452	-0.029	0.997	229384		2.81(2.86-5.31)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.442	6.451	-0.009	1.000	21041883	10.5			
$ 18 13C8 PFOS									
506.9 > 80.0	6.714	6.723	-0.009	1.000	4267369	9.53			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.714	6.724	-0.010		6998452	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9		6.724				ND			
498.9 > 98.9		6.724							

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.734	6.744	-0.010		19455355	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9		6.744				ND			
463.0 > 218.9		6.744							
* 22 13C2 PFDA (IS)									
514.9 > 470.0	6.978	6.988	-0.010		16003466	10.0			
* 26 13C2 PFUnA (IS)									s
564.9 > 520.0	7.186	7.196	-0.010		5992127	10.0			
* 28 13C2 PFDoA (IS)									s
614.9 > 569.9	7.365	7.384	-0.019		8899541	10.0			
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.529	7.548	-0.019		869665	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND
R - Failed Signal Ratio Test
s - Failed ISTD Recovery Test

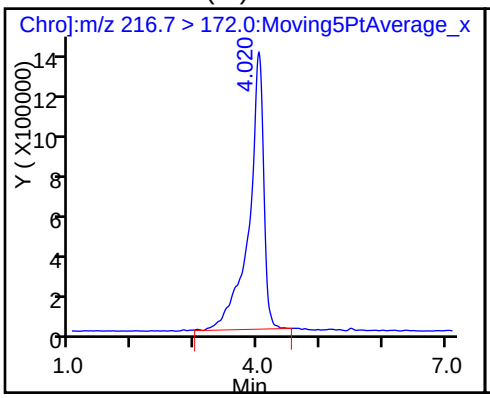
Report Date: 29-Jul-2016 10:38:03 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

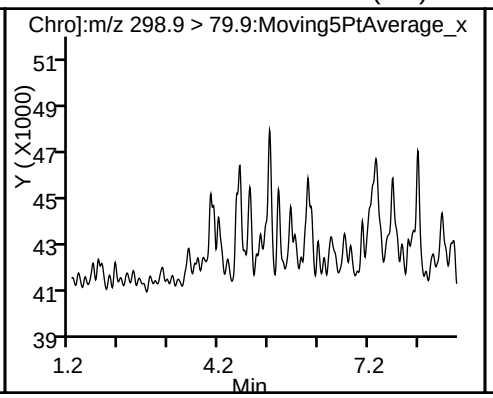
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28068.d

Injection Date:	28-Jul-2016 22:02:56	Instrument ID:	LC_LCMS5		
Lims ID:	280-85298-B-13-A	Lab Sample ID:	280-85298-13		
Client ID:	DBF-MW-5				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	24
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

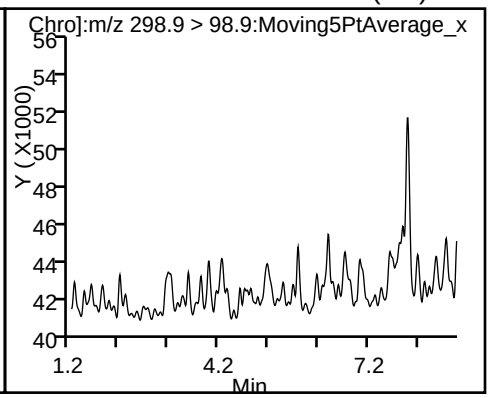
* 1 13C4 PFBA (IS)



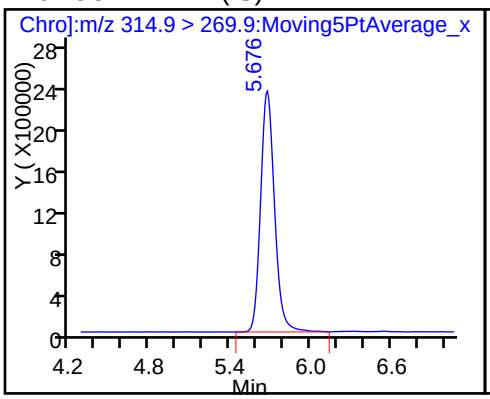
4 Perfluorobutane Sulfonate (ND)



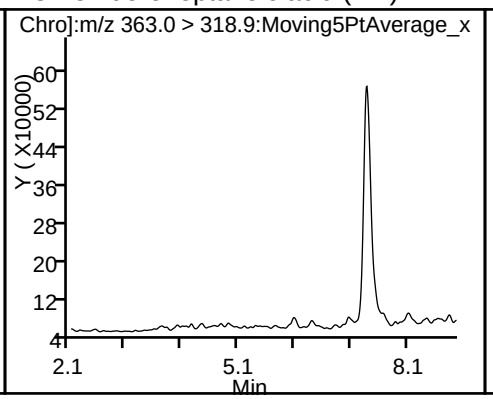
4 Perfluorobutane Sulfonate (ND)



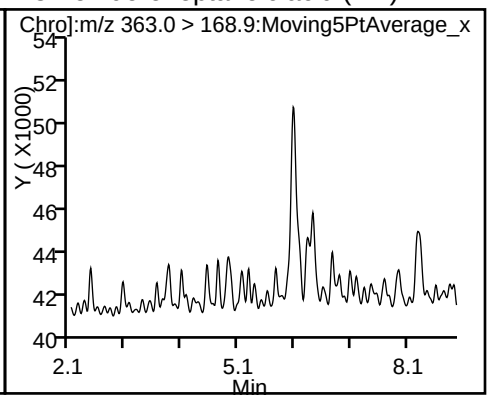
* 6 13C2 PFHxA (IS)



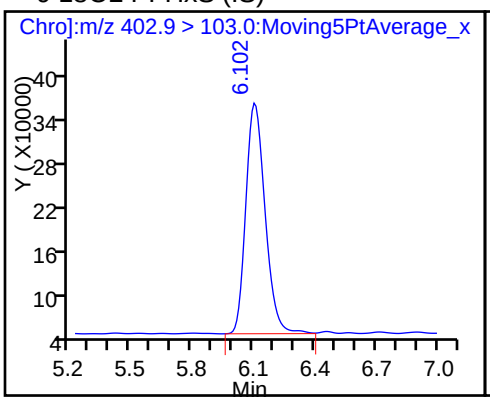
8 Perfluoroheptanoic acid (ND)



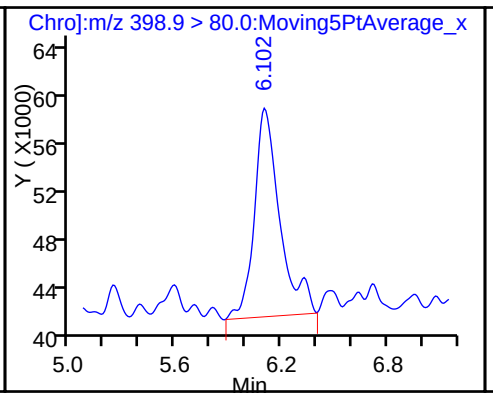
8 Perfluoroheptanoic acid (ND)



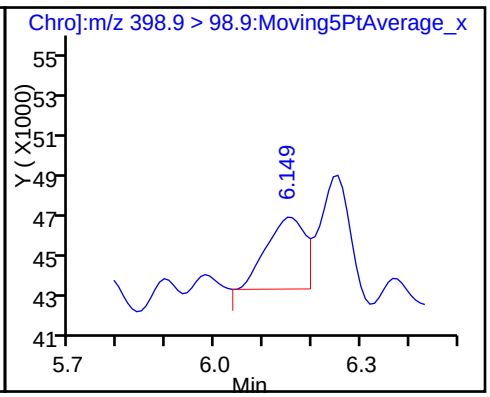
* 9 18O2 PFHxS (IS)



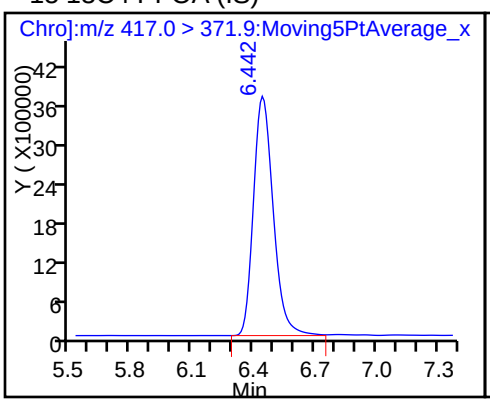
10 Perfluorohexane Sulfonate



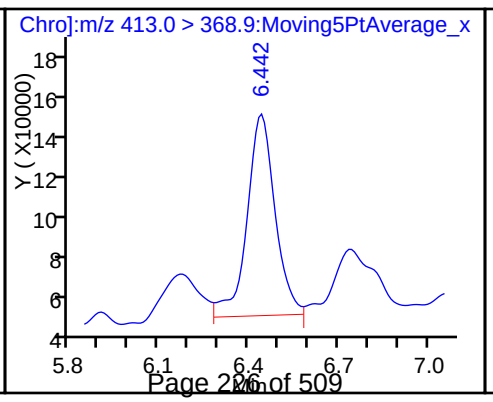
10 Perfluorohexane Sulfonate



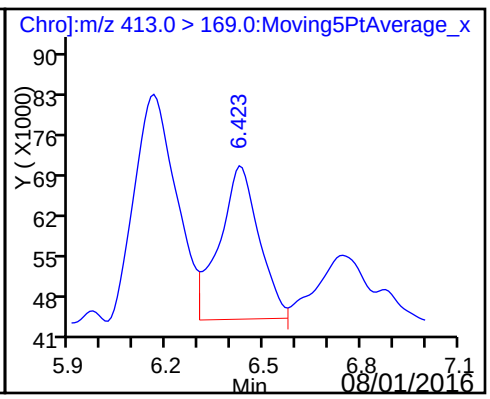
* 15 13C4 PFOA (IS)



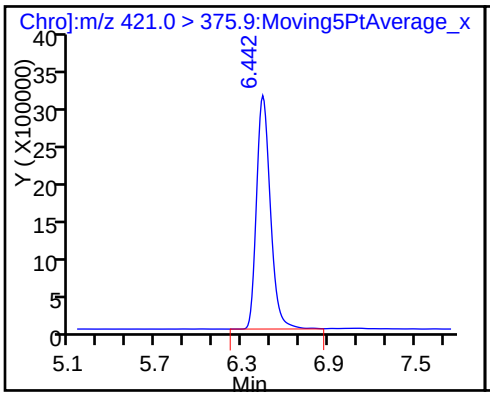
16 Perfluorooctanoic acid



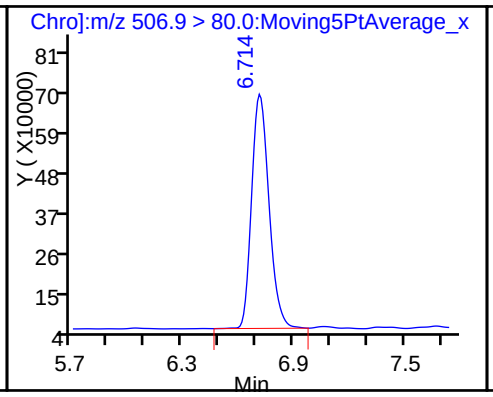
16 Perfluorooctanoic acid



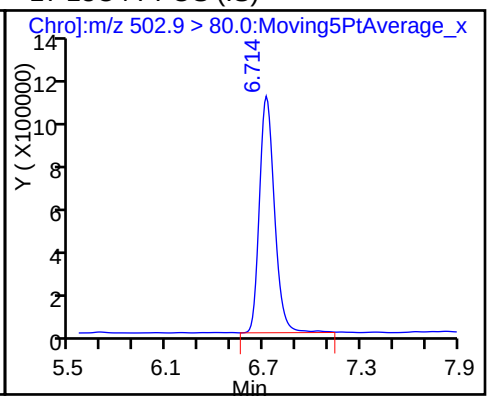
$ 14 13C8 PFOA



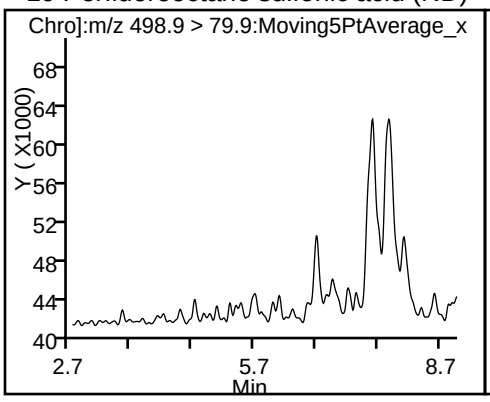
$ 18 13C8 PFOS



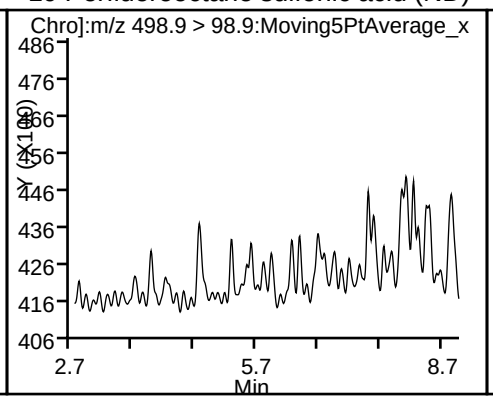
* 17 13C4 PFOS (IS)



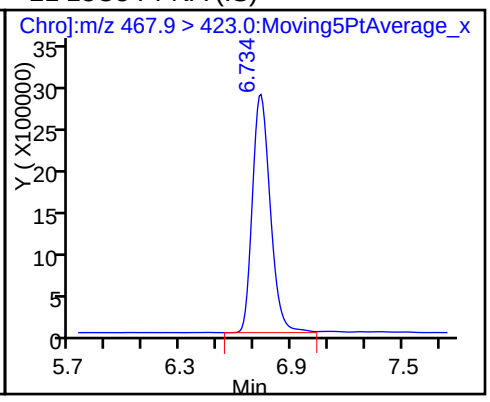
19 Perfluorooctane sulfonic acid (ND)



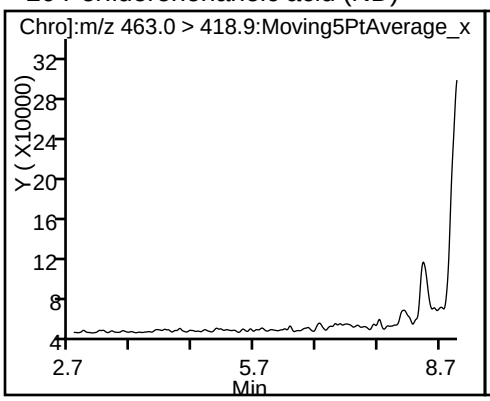
19 Perfluorooctane sulfonic acid (ND)



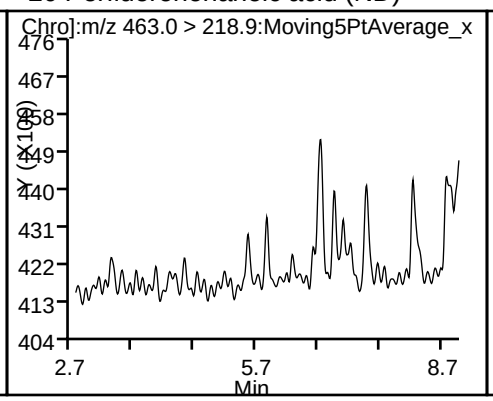
* 21 13C5 PFNA (IS)



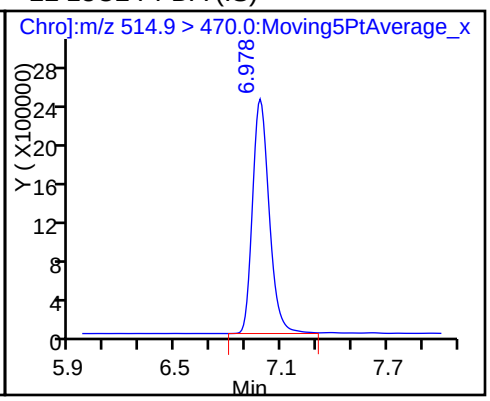
20 Perfluorononanoic acid (ND)



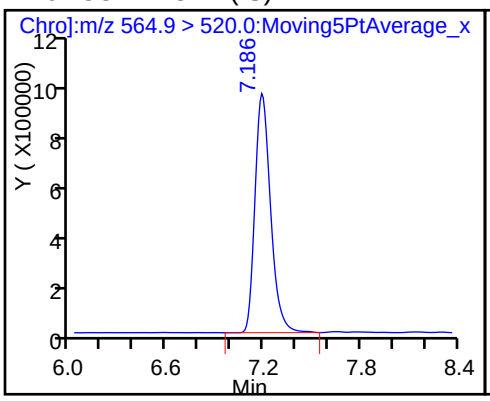
20 Perfluorononanoic acid (ND)



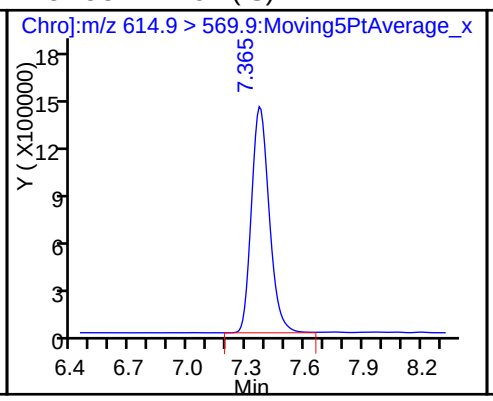
* 22 13C2 PFDA (IS)



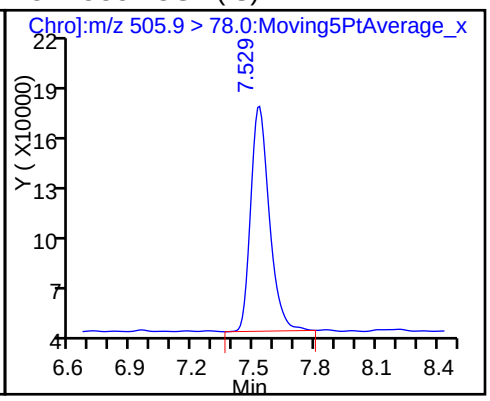
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: DBF-MW-1 | Lab Sample ID: 280-85298-14

Matrix: Water | Lab File ID: PC516G20066.d

Analysis Method: DV-LC-0012 | Date Collected: 07/06/2016 14:17

Extraction Method: 3535 | Date Extracted: 07/16/2016 07:25

Sample wt/vol: 275.3(mL) | Date Analyzed: 07/20/2016 19:17

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 334502 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.0075	U *	0.018	0.0075
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.012	U	0.027	0.012
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.0063	U	0.027	0.0063
375-95-1	Perfluorononanoic acid (PFNA)	0.016	U	0.036	0.016
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.012	U	0.027	0.012
335-67-1	Perfluorooctanoic acid (PFOA)	0.0089	U	0.018	0.0089

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	103		60-155
STL01054	13C8 PFOS	100		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160721-49036.b\PC516G20066.d
Lims ID: 280-85298-B-14-A Lab Sample ID: 280-85298-14
Client ID: DBF-MW-1
Sample Type: Client
Inject. Date: 20-Jul-2016 19:17:14 ALS Bottle#: 0 Worklist Smp#: 7
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85298-B-14-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160721-49036.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 29-Jul-2016 17:07:24 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK003

First Level Reviewer: meyera Date: 21-Jul-2016 08:17:00

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	3.887	4.115	-0.228		33756719	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.289				ND			
298.9 > 98.9		5.289							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.629	5.752	-0.123		21735761	10.0			
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.083	6.187	-0.104		2734237	9.46			
10 Perfluorohexane Sulfonate									
398.9 > 80.0		6.187				ND			
398.9 > 98.9		6.187							
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.187				ND			
363.0 > 168.9		6.187							
$ 14 13C8 PFOA									
421.0 > 375.9	6.423	6.527	-0.104	1.000	27637791	10.3			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.414	6.527	-0.113	0.999	731964	0.1411			
413.0 > 169.0	6.395	6.527	-0.132	0.996	176474		4.15(2.86-5.31)		
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.423	6.537	-0.114		33242992	10.0			
$ 18 13C8 PFOS									
506.9 > 80.0	6.695	6.809	-0.114	1.000	5347887	9.52			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.695	6.809	-0.114		8780712	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9		6.809				ND			
498.9 > 98.9		6.809							

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.706	6.829	-0.123		25670632	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9		6.829				ND			
463.0 > 218.9		6.829							
* 22 13C2 PFDA (IS)									
514.9 > 470.0	6.960	7.073	-0.113		22714301	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.167	7.281	-0.114		12181095	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.356	7.460	-0.104		21327726	10.0			
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.491	7.567	-0.076		821395	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

s - Failed ISTD Recovery Test

Report Date: 29-Jul-2016 17:07:25 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160721-49036.b\PC516G20066.d

Injection Date: 20-Jul-2016 19:17:14 Instrument ID: LC_LCMS5

Lims ID: 280-85298-B-14-A Lab Sample ID: 280-85298-14

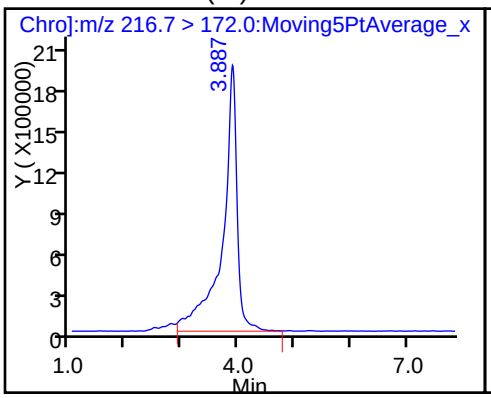
Client ID: DBF-MW-1

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 7

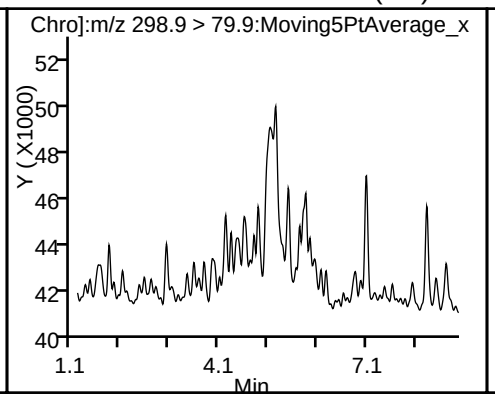
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

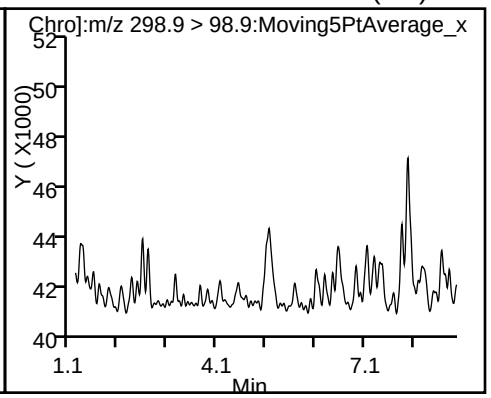
* 1 13C4 PFBA (IS)



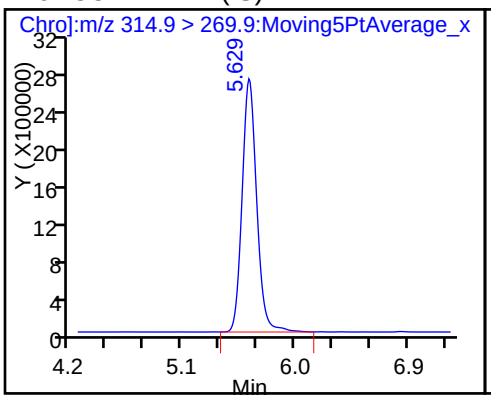
4 Perfluorobutane Sulfonate (ND)



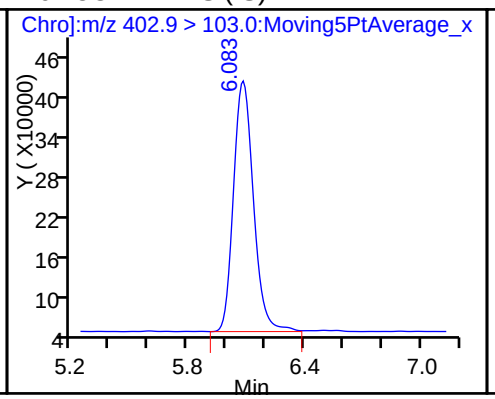
4 Perfluorobutane Sulfonate (ND)



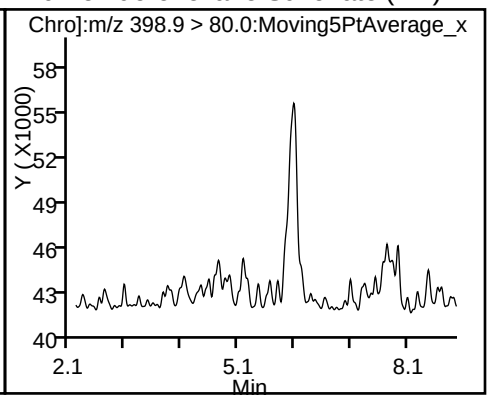
* 6 13C2 PFHxA (IS)



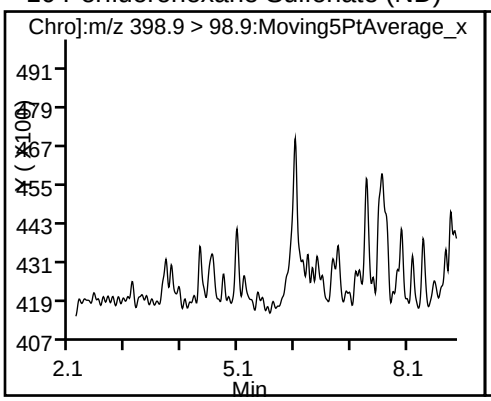
* 9 18O2 PFHxS (IS)



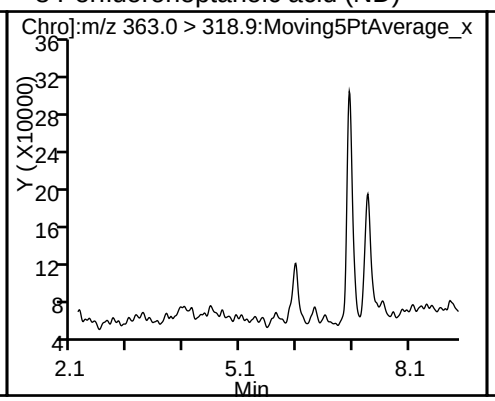
10 Perfluorohexane Sulfonate (ND)



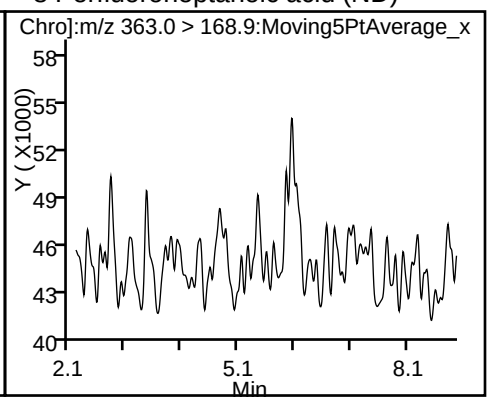
10 Perfluorohexane Sulfonate (ND)



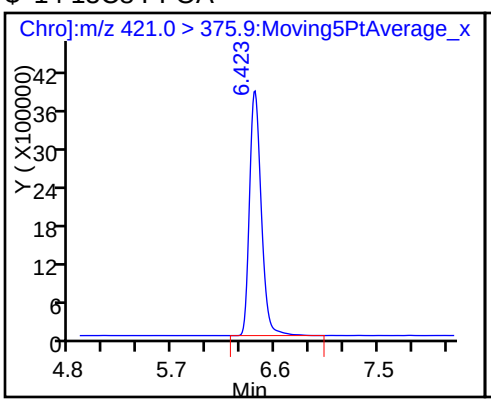
8 Perfluoroheptanoic acid (ND)



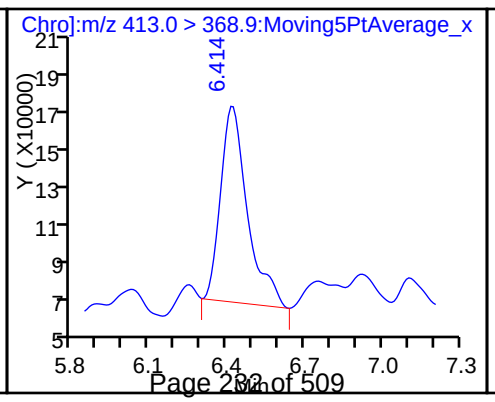
8 Perfluoroheptanoic acid (ND)



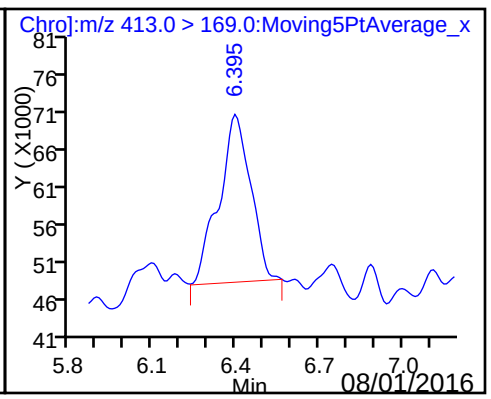
$ 14 13C8 PFOA



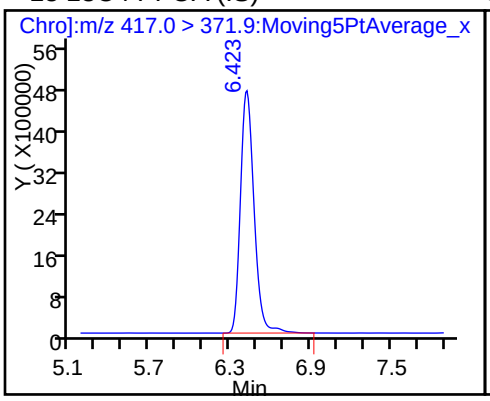
16 Perfluorooctanoic acid



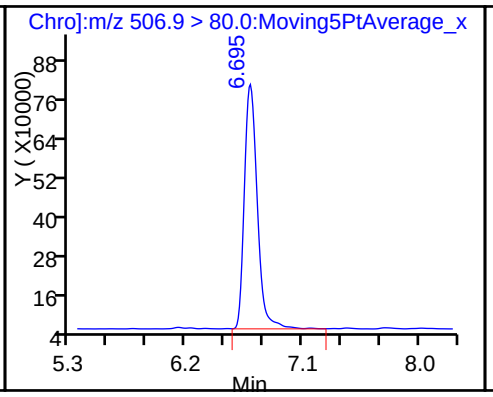
16 Perfluorooctanoic acid



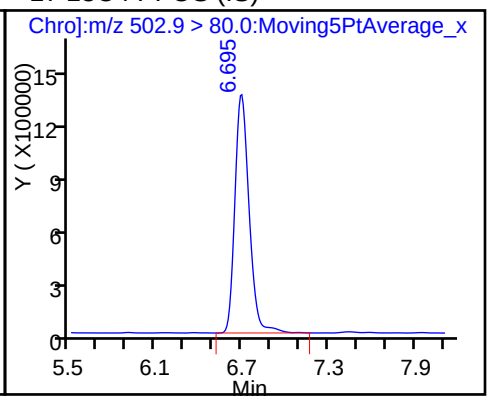
* 15 13C4 PFOA (IS)



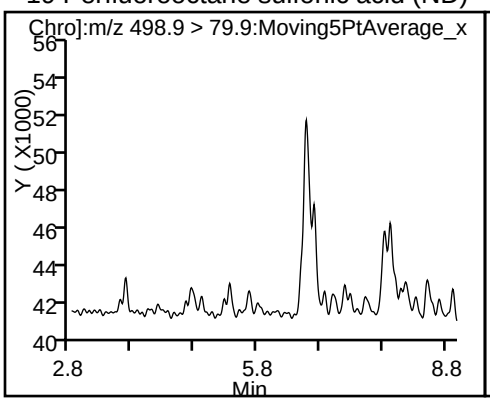
$ 18 13C8 PFOS



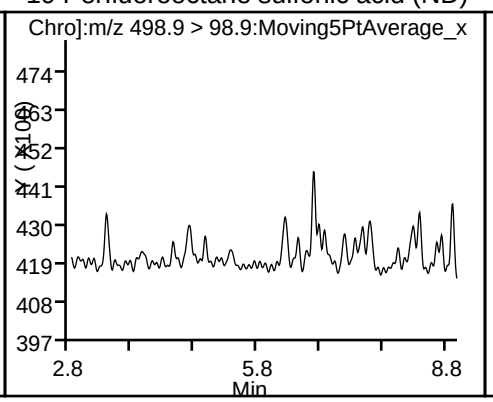
* 17 13C4 PFOS (IS)



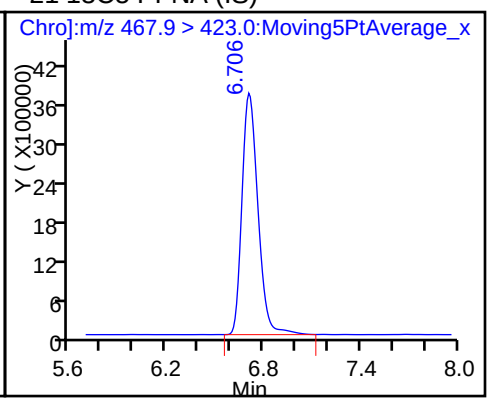
19 Perfluorooctane sulfonic acid (ND)



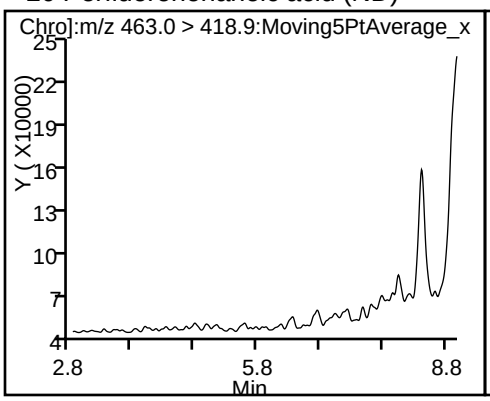
19 Perfluorooctane sulfonic acid (ND)



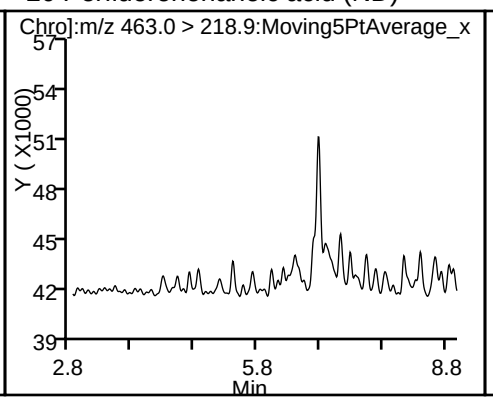
* 21 13C5 PFNA (IS)



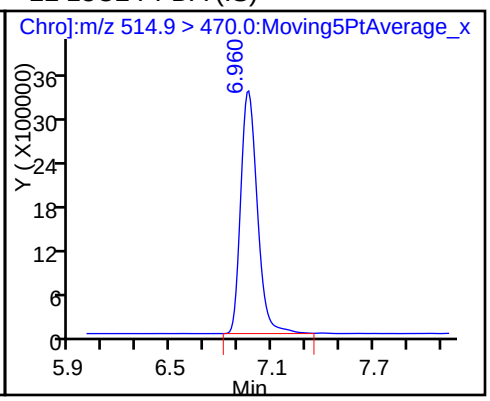
20 Perfluorononanoic acid (ND)



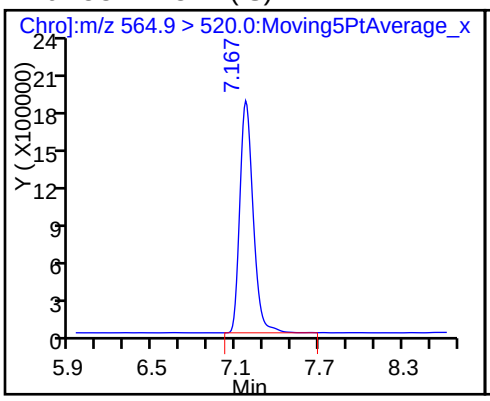
20 Perfluorononanoic acid (ND)



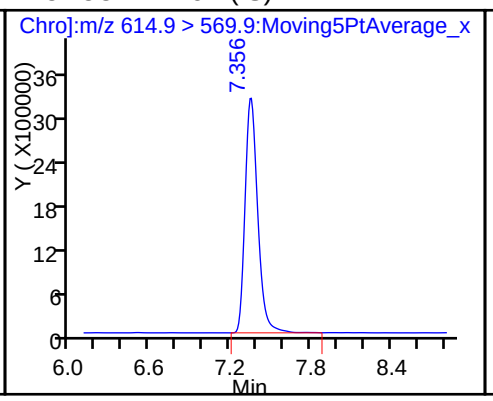
* 22 13C2 PFDA (IS)



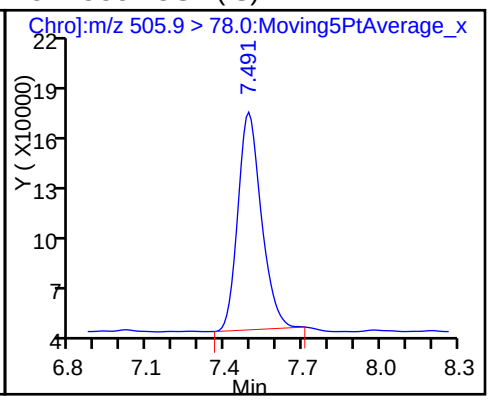
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: DBF-MW-1 RE | Lab Sample ID: 280-85298-14 RE

Matrix: Water | Lab File ID: PC516G28069.d

Analysis Method: DV-LC-0012 | Date Collected: 07/06/2016 14:17

Extraction Method: 3535 | Date Extracted: 07/25/2016 10:50

Sample wt/vol: 256(mL) | Date Analyzed: 07/28/2016 22:15

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 335652 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	*Perfluorobutane Sulfonate (PFBS)*	*0.0080*	*U H*	*0.020*	*0.0080*
375-85-9	*Perfluoroheptanoic acid (PFHpA)*	*0.013*	*U H*	*0.029*	*0.013*
108427-53-8	*Perfluorohexane Sulfonate (PFHxS)*	*0.0068*	*U H*	*0.029*	*0.0068*
375-95-1	*Perfluorononanoic acid (PFNA)*	*0.017*	*U H*	*0.039*	*0.017*
1763-23-1	*Perfluorooctanesulfonic acid (PFOS)*	*0.013*	*U H*	*0.029*	*0.013*
335-67-1	*Perfluorooctanoic acid (PFOA)*	*0.0096*	*U H*	*0.020*	*0.0096*

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	104		60-155
STL01054	13C8 PFOS	109		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28069.d
Lims ID: 280-85298-A-14-A Lab Sample ID: 280-85298-14
Client ID: DBF-MW-1
Sample Type: Client
Inject. Date: 28-Jul-2016 22:15:14 ALS Bottle#: 0 Worklist Smp#: 25
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85298-A-14-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 29-Jul-2016 10:37:58 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK010

First Level Reviewer: meyera Date: 29-Jul-2016 09:50:55

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.048	4.020	0.028		21921360	10.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.213				ND			
298.9 > 98.9		5.213							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.695	5.676	0.019		15977211	10.0			
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.102				ND			
363.0 > 168.9		6.102							
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.120	6.111	0.009		2154768	9.46			
10 Perfluorohexane Sulfonate									
398.9 > 80.0		6.111				ND			
398.9 > 98.9		6.111							
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.461	6.451	0.010		24678780	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.452	6.452	0.0	0.999	527081	0.1347			
413.0 > 169.0	6.461	6.452	0.009	1.000	167645		3.14(2.86-5.31)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.461	6.451	0.010	1.000	20258015	10.2			
$ 18 13C8 PFOS									
506.9 > 80.0	6.733	6.723	0.010	1.000	4627659	10.1			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.733	6.724	0.009		7136435	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9		6.724				ND			
498.9 > 98.9		6.724							

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.753	6.744	0.009		20422743	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9		6.744				ND			
463.0 > 218.9		6.744							
* 22 13C2 PFDA (IS)									
514.9 > 470.0	6.997	6.988	0.009		19284331	10.0			
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.205	7.196	0.009		8780698	10.0			
* 28 13C2 PFDoA (IS)									s
614.9 > 569.9	7.393	7.384	0.009		12119599	10.0			
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.548	7.548	0.0		1135257	10.0			

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

s - Failed ISTD Recovery Test

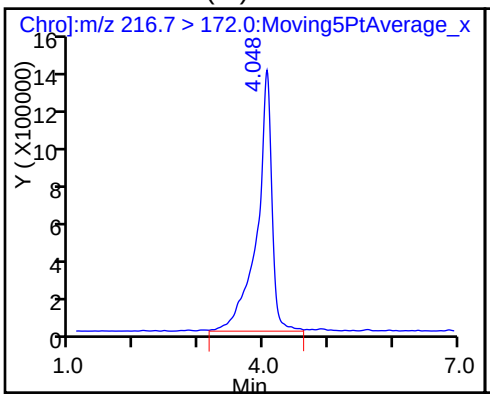
Report Date: 29-Jul-2016 10:38:06 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

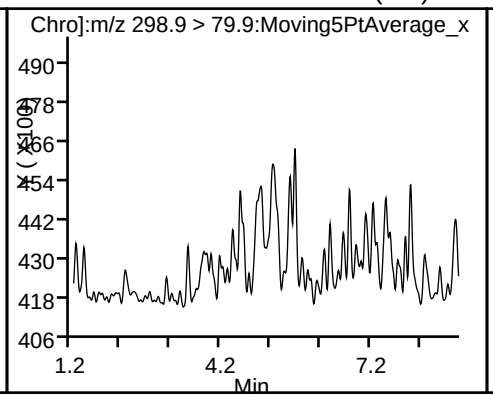
Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28069.d

Injection Date:	28-Jul-2016 22:15:14	Instrument ID:	LC_LCMS5		
Lims ID:	280-85298-A-14-A	Lab Sample ID:	280-85298-14		
Client ID:	DBF-MW-1				
Operator ID:	ACM	ALS Bottle#:	0	Worklist Smp#:	25
Injection Vol:	25.0 ul	Dil. Factor:	1.0000		
Method:	8321_PFC	Limit Group:	LC - PFC		

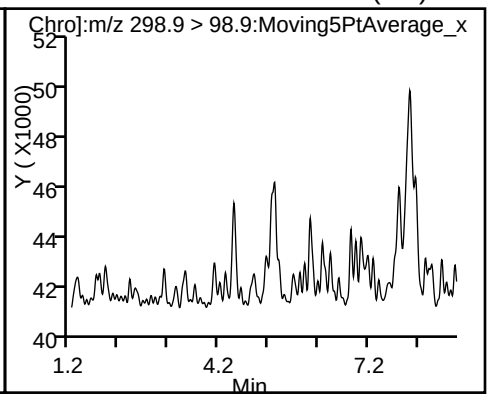
* 1 13C4 PFBA (IS)



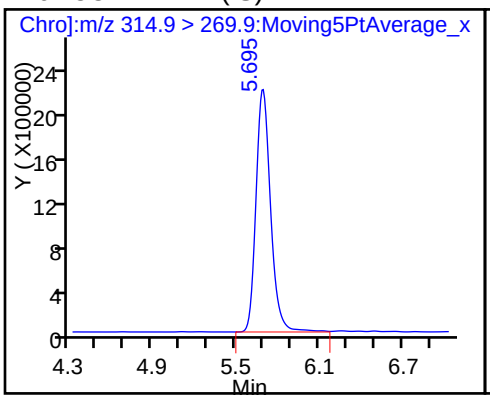
4 Perfluorobutane Sulfonate (ND)



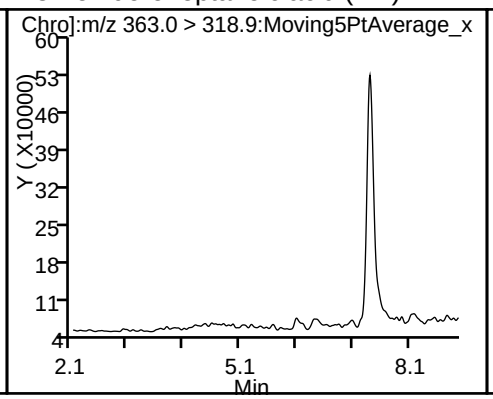
4 Perfluorobutane Sulfonate (ND)



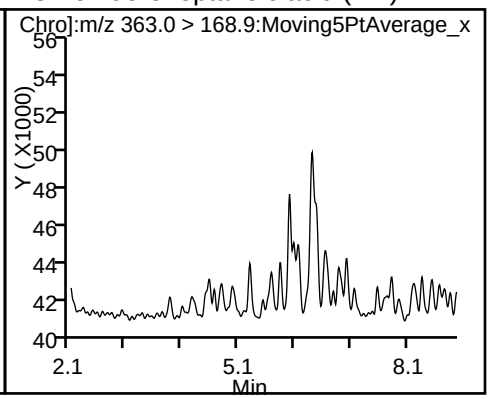
* 6 13C2 PFHxA (IS)



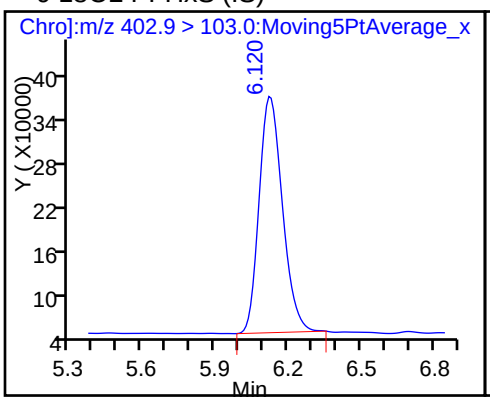
8 Perfluoroheptanoic acid (ND)



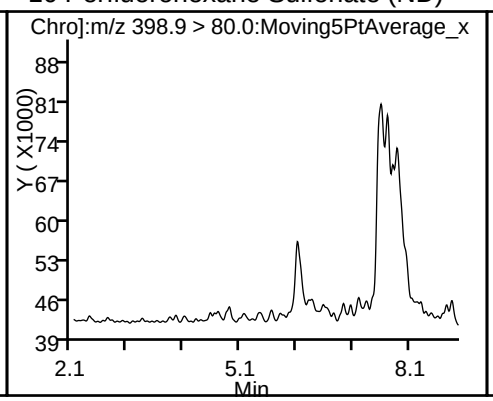
8 Perfluoroheptanoic acid (ND)



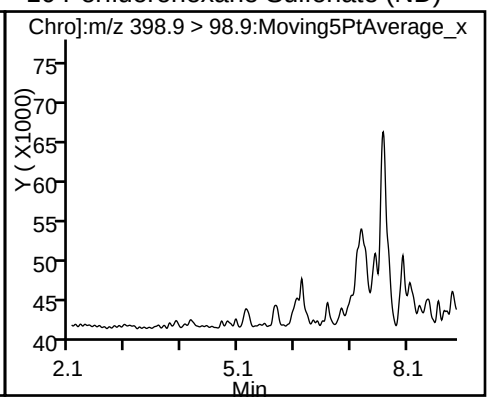
* 9 18O2 PFHxS (IS)



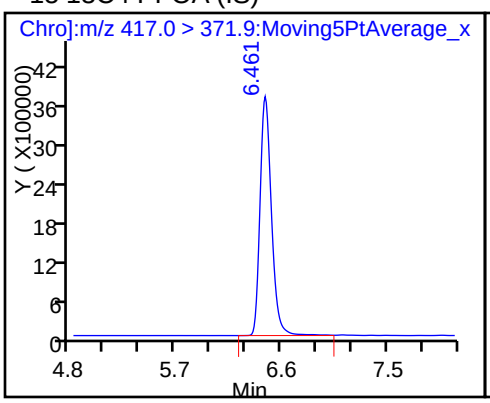
10 Perfluorohexane Sulfonate (ND)



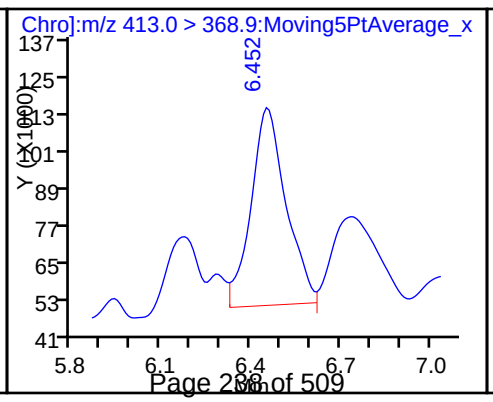
10 Perfluorohexane Sulfonate (ND)



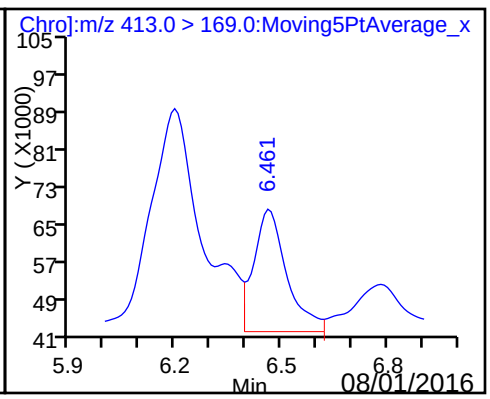
* 15 13C4 PFOA (IS)



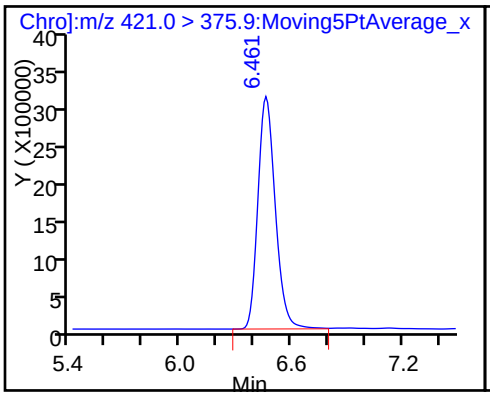
16 Perfluorooctanoic acid



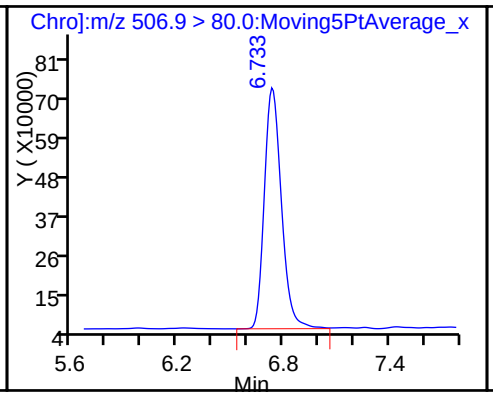
16 Perfluorooctanoic acid



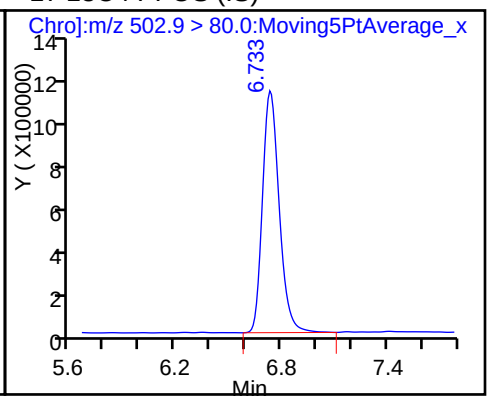
$ 14 13C8 PFOA



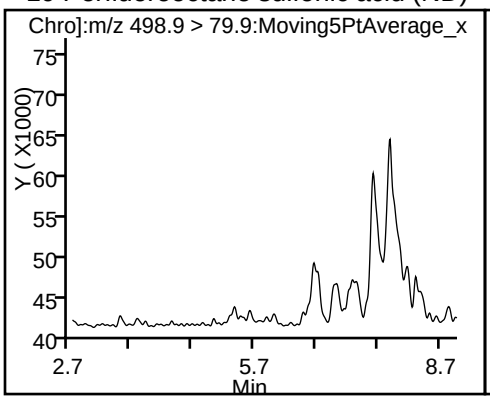
$ 18 13C8 PFOS



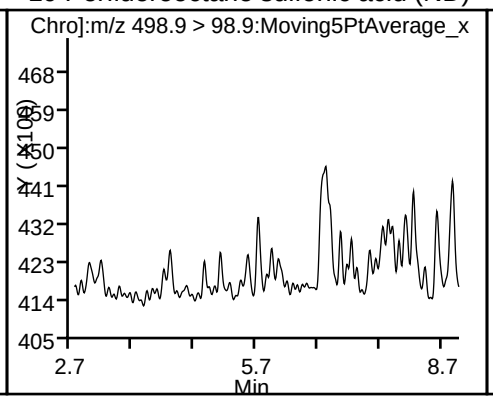
* 17 13C4 PFOS (IS)



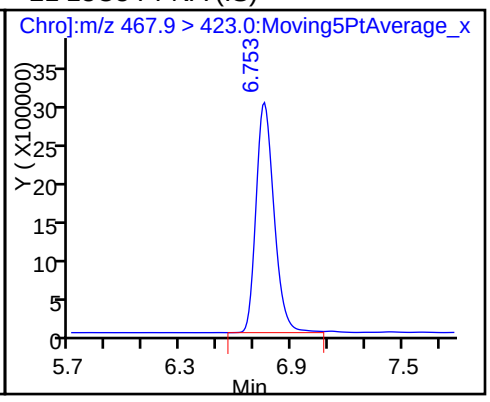
19 Perfluorooctane sulfonic acid (ND)



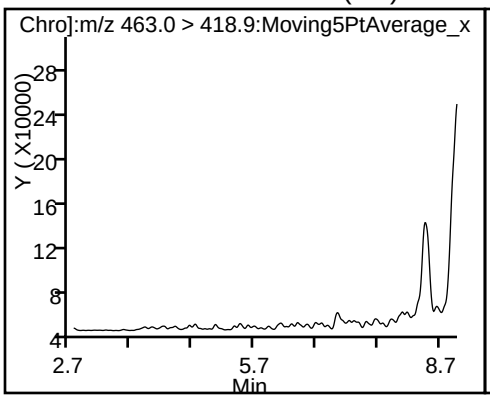
19 Perfluorooctane sulfonic acid (ND)



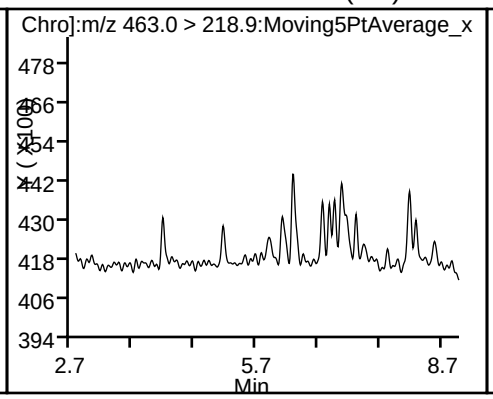
* 21 13C5 PFNA (IS)



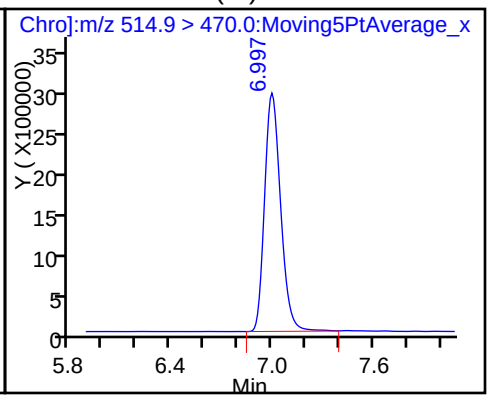
20 Perfluorononanoic acid (ND)



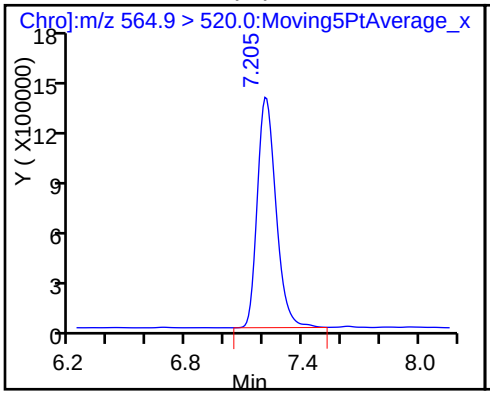
20 Perfluorononanoic acid (ND)



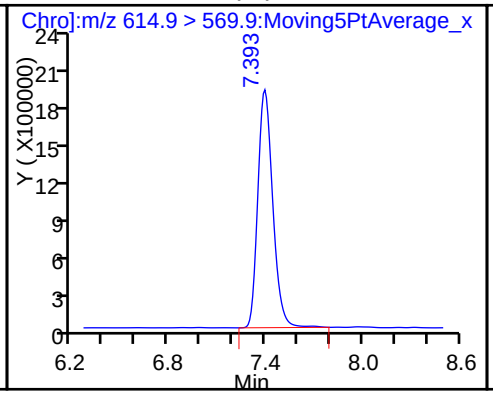
* 22 13C2 PFDA (IS)



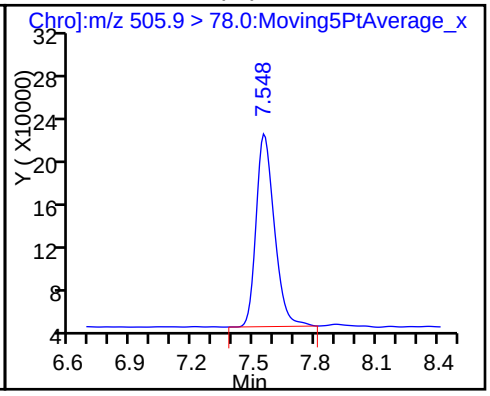
* 26 13C2 PFUnA (IS)



* 28 13C2 PFDoA (IS)



* 31 13C8 FOSA (IS)



FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Denver Job No.: 280-85298-1 Analy Batch No.: 328740

SDG No.:

Instrument ID: LC_LCMS5 GC Column: Gemini-NX ID: Heated Purge: (Y/N) N

Calibration Start Date: 06/06/2016 14:49 Calibration End Date: 06/06/2016 16:28 Calibration ID: 26146

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD0002 280-328740/3	PC516F06008.d
Level 2	STD0005 280-328740/4	PC516F06009.d
Level 3	STD0010 280-328740/5	PC516F06010.d
Level 4	STD0020 280-328740/6	PC516F06011.d
Level 5	STD0050 280-328740/7	PC516F06012.d
Level 6	STD0100 280-328740/8	PC516F06013.d
Level 7	STD0200 280-328740/9	PC516F06014.d
Level 8	STD0500 280-328740/10	PC516F06015.d
Level 9	STD1250 280-328740/11	PC516F06016.d

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5		B	M1	M2								
Perfluorobutanoic acid (PFBA)	1.0935 1.0731	0.9682 1.1168	1.1011 1.0889	1.0163 1.1259	1.0411	Lin2	-0.004	1.0730							0.9970		0.9800
Perfluoropentanoic acid (PFPA)	1.3959 1.2078	1.0565 1.2222	1.2095 1.2100	1.1322 1.1856	1.2067	Lin2	0.0300	1.1734							0.9950		0.9800
Perfluorobutane Sulfonate (PFBS)	5.1403 4.7868	4.9725 5.2449	5.0208 5.5169	4.6740 5.9824	5.2935	Lin2	-0.043	5.2289							0.9930		0.9800
Perfluorobutanesulfonic acid	5.1403 4.7868	4.9725 5.2449	5.0208 5.5169	4.6740 5.9824	5.2935	Lin2	-0.043	5.2289							0.9930		0.9800
Perfluorohexanoic acid (PFHxA)	1.0267 0.9482	1.0181 0.9452	0.9750 0.9241	1.0158 0.9118	0.9109	Lin2	0.0206	0.9436							0.9990		0.9800
Perfluoroheptanoic acid (PFHpA)	1.0268 0.9363	0.9027 0.9087	0.8648 0.8487	0.8655 0.8270	0.8797	Lin2	0.0290	0.8670							0.9980		0.9800
Perfluorohexane Sulfonate (PFHxS)	5.5961 3.6390	4.4606 4.0123	4.1902 3.7210	4.0834 3.8307	4.0848	Lin2	0.3295	3.8358							0.9990		0.9800
Perfluorohexanesulfonic acid	5.5961 3.6390	4.4606 4.0123	4.1902 3.7210	4.0834 3.8307	4.0848	Lin2	0.3295	3.8358							0.9990		0.9800
Perfluoroheptane Sulfonate	1.0469 1.2337	1.4301 1.1966	1.2370 1.2023	1.1876 1.0563	1.2143	Lin2	-0.012	1.2131							0.9900		0.9800
Perfluoroheptanesulfonic Acid (PFHpS)	1.0469 1.2337	1.4301 1.1966	1.2370 1.2023	1.1876 1.0563	1.2143	Lin2	-0.012	1.2131							0.9900		0.9800
Perfluorooctanoic acid (PFOA)	1.3260 1.0892	1.3937 1.0793	1.0859 0.9740	1.0522 0.9049	1.0619	Lin2	0.0742	1.0342							0.9890		0.9800
Perfluorooctanesulfonic acid (PFOS)	1.5676 1.2584	1.3596 1.1582	1.3732 1.1122	1.1887 0.9589	1.2720	Lin2	0.0841	1.1630							0.9910		0.9800
Perfluorononanoic acid (PFNA)	1.3972 1.1280	1.1487 1.1212	1.0990 1.1350	1.1535 1.1303	1.1718	Lin2	0.0488	1.1168							0.9980		0.9800

Note: The m1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Denver Job No.: 280-85298-1 Analy Batch No.: 328740

SDG No.:

Instrument ID: LC_LCMS5 GC Column: Gemini-NX ID: Heated Purge: (Y/N) N

Calibration Start Date: 06/06/2016 14:49 Calibration End Date: 06/06/2016 16:28 Calibration ID: 26146

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5		B	M1	M2								
Perfluorodecanoic acid (PFDA)	1.1899 1.0233	1.0247 0.9665	1.0818 1.0033	1.0008 0.9920	1.0636	Lin2	0.0350	1.0039							0.9990		0.9800
Perfluorodecane sulfonate (PFDS)	1.4838 1.2796	1.3630 1.2639	1.2150 1.2964	1.2209 1.1582	1.2487	Lin2	0.0481	1.2319							0.9980		0.9800
Perfluorodecane Sulfonic acid	1.4838 1.2796	1.3630 1.2639	1.2150 1.2964	1.2209 1.1582	1.2487	Lin2	0.0481	1.2319							0.9980		0.9800
Perfluoroundecanoic acid (PFUnA)	1.7146 1.4647	1.7101 1.3676	1.5648 1.3430	1.3951 1.3939	1.4002	Lin2	0.0750	1.4098							0.9960		0.9800
Perfluorododecanoic acid (PFDoA)	1.3017 1.0587	1.1956 1.0311	1.0672 0.9868	1.0267 1.0217	1.0324	Lin2	0.0595	1.0215							0.9990		0.9800
Perfluorooctane Sulfonamide (FOSA)	1.1447 1.0951	1.0906 1.0524	1.0905 1.0899	1.0591 1.1084	1.1227	Lin2	0.0103	1.0846							0.9990		0.9800
Perfluorotridecanoic Acid (PFTriA)	1.2872 0.9589	1.0900 0.9686	0.9993 0.8414	0.9813 0.8847	0.9590	Lin2	0.0751	0.9227							0.9980		0.9800
Perfluorotetradecanoic acid (PFTeA)	0.6533 0.5880	0.5308 0.6377	0.5451 0.6135	0.5482 0.6668	0.5681	Lin2	0.0042	0.5905							0.9910		0.9800
13C8 PFOA	0.9499 0.8392	0.9381 0.7496	0.9704 0.7015	0.8844 0.6647	0.8995	Lin2	0.0401	0.8046							0.9840		0.9800
13C8 PFOS	0.6559 0.6428	0.7415 0.5602	0.6905 0.5481	0.6966 0.4724	0.6607	Lin2	0.0199	0.6093							0.9800		0.9800

Note: The m1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Denver Job No.: 280-85298-1 Analy Batch No.: 328740

SDG No.:

Instrument ID: LC_LCMS5 GC Column: Gemini-NX ID: Heated Purge: (Y/N) N

Calibration Start Date: 06/06/2016 14:49 Calibration End Date: 06/06/2016 16:28 Calibration ID: 26146

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD0002 280-328740/3	PC516F06008.d
Level 2	STD0005 280-328740/4	PC516F06009.d
Level 3	STD0010 280-328740/5	PC516F06010.d
Level 4	STD0020 280-328740/6	PC516F06011.d
Level 5	STD0050 280-328740/7	PC516F06012.d
Level 6	STD0100 280-328740/8	PC516F06013.d
Level 7	STD0200 280-328740/9	PC516F06014.d
Level 8	STD0500 280-328740/10	PC516F06015.d
Level 9	STD1250 280-328740/11	PC516F06016.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5
Perfluorobutanoic acid (PFBA)	BA	Lin2	595154 30314584	1295896 64808389	3038727 157344591	5302668 394160471	15646483	0.200 10.0	0.500 20.0	1.00 50.0	2.00 125	5.00
Perfluoropentanoic acid (PFPA)	HXA	Lin2	684905 26550357	1319121 52945593	2769987 120508960	5174660 255912628	14121680	0.200 10.0	0.500 20.0	1.00 50.0	2.00 125	5.00
Perfluorobutane Sulfonate (PFBS)	HXS	Lin2	250069 10998014	623522 21952626	1117801 52661159	2150148 113831493	5710734	0.177 8.85	0.443 17.7	0.885 44.3	1.77 111	4.43
Perfluorobutanesulfonic acid	HXS	Lin2	250069 10998014	623522 21952626	1117801 52661159	2150148 113831493	5710734	0.177 8.85	0.443 17.7	0.885 44.3	1.77 111	4.43
Perfluorohexanoic acid (PFHxA)	HXA	Lin2	503746 20841959	1271251 40945931	2232965 92031312	4642778 196806552	10659437	0.200 10.0	0.500 20.0	1.00 50.0	2.00 125	5.00
Perfluoroheptanoic acid (PFHpA)	OA	Lin2	696517 27517800	1648753 50554239	2810806 102889489	5744336 201805611	14292973	0.200 10.0	0.500 20.0	1.00 50.0	2.00 125	5.00
Perfluorohexane Sulfonate (PFHxS)	HXS	Lin2	290699 8927761	597251 17932033	996121 37926174	2005825 77830813	4705477	0.189 9.45	0.473 18.9	0.945 47.3	1.89 118	4.73
Perfluorohexanesulfonic acid	HXS	Lin2	290699 8927761	597251 17932033	996121 37926174	2005825 77830813	4705477	0.189 9.45	0.473 18.9	0.945 47.3	1.89 118	4.73
Perfluoroheptane Sulfonate	PFOS	Lin2	193401 10232509	677069 20264466	1051810 43315154	2150073 81786282	5403580	0.190 9.52	0.476 19.0	0.952 47.6	1.90 119	4.76
Perfluoroheptanesulfonic Acid (PFHpS)	PFOS	Lin2	193401 10232509	677069 20264466	1051810 43315154	2150073 81786282	5403580	0.190 9.52	0.476 19.0	0.952 47.6	1.90 119	4.76
Perfluorooctanoic acid (PFOA)	OA	Lin2	899444 32009782	2545486 60046068	3529270 118077119	6983614 220819164	17252348	0.200 10.0	0.500 20.0	1.00 50.0	2.00 125	5.00
Perfluorooctanesulfonic acid (PFOS)	PFOS	Lin2	290513 10470143	645716 19674973	1171224 40197453	2158847 74481235	5678428	0.191 9.55	0.478 19.1	0.955 47.8	1.91 119	4.78
Perfluorononanoic acid (PFNA)	NA	Lin2	740676 25021117	1587923 43845776	2681286 90947910	5817495 168854641	14058059	0.200 10.0	0.500 20.0	1.00 50.0	2.00 125	5.00
Perfluorodecanoic acid (PFDA)	DA	Lin2	647522 25238466	1445379 48421431	2800062 109010928	5187930 219177035	13455719	0.200 10.0	0.500 20.0	1.00 50.0	2.00 125	5.00

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Denver Job No.: 280-85298-1 Analy Batch No.: 328740

SDG No.:

Instrument ID: LC_LCMS5 GC Column: Gemini-NX ID: Heated Purge: (Y/N) N

Calibration Start Date: 06/06/2016 14:49 Calibration End Date: 06/06/2016 16:28 Calibration ID: 26146

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5
Perfluorodecane sulfonate (PFDS)	PFOS	Lin2	277874 10758635	654135 21695661	1047130 47343835	2240490 90907790	5632521	0.193 9.65	0.483 19.3	0.965 48.3	1.93 121	4.83
Perfluorodecane Sulfonic acid	PFOS	Lin2	277874 10758635	654135 21695661	1047130 47343835	2240490 90907790	5632521	0.193 9.65	0.483 19.3	0.965 48.3	1.93 121	4.83
Perfluoroundecanoic acid (PFUnA)	UNA	Lin2	588700 21285381	1566038 39180966	2540060 77899378	4772902 154032440	11414147	0.200 10.0	0.500 20.0	1.00 50.0	2.00 125	5.00
Perfluorododecanoic acid (PFDoA)	DOA	Lin2	915560 33735988	2159339 63246783	3492545 142077526	6822134 293807930	17657166	0.200 10.0	0.500 20.0	1.00 50.0	2.00 125	5.00
Perfluorooctane Sulfonamide (FOSA)	FOSA	Lin2	590186 26107207	1495146 51602388	2697496 117575149	5393596 250150013	13895071	0.200 10.0	0.500 20.0	1.00 50.0	2.00 125	5.00
Perfluorotridecanoic Acid (PFTriA)	DOA	Lin2	905331 30556604	1968702 59415459	3270152 121132497	6520781 254423900	16402113	0.200 10.0	0.500 20.0	1.00 50.0	2.00 125	5.00
Perfluorotetradecanoic acid (PFTeA)	DOA	Lin2	459487 18737310	958729 39118116	1783816 88331768	3642443 191754560	9715521	0.200 10.0	0.500 20.0	1.00 50.0	2.00 125	5.00
13C8 PFOA	OA	Lin2	644366 24662701	1713329 41702455	3153884 85046612	5869974 162199054	14613722	0.200 10.0	0.500 20.0	1.00 50.0	2.00 125	5.00
13C8 PFOS	PFOS	Lin2	121681 5353658	352518 9525828	589580 19830288	1266475 36728856	2952684	0.191 9.56	0.478 19.1	0.956 47.8	1.91 120	4.78

Curve Type Legend:
Lin2 = Linear 1/conc^2 ISTD

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06008.d
Lims ID: STD0002
Client ID:
Sample Type: IC Calib Level: 1
Inject. Date: 06-Jun-2016 14:49:59 ALS Bottle#: 0 Worklist Smp#: 3
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: STD 0002, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 07-Jun-2016 14:08:32 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK003

First Level Reviewer: meyera Date: 07-Jun-2016 13:00:17

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.446	4.020	0.426		27213757	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	3.982	4.020	-0.038	0.896	595154	0.2072			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.355	5.100	0.255	0.910	684905	0.2124			
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.450	5.222	0.228	0.865	250069	0.1822			
298.9 > 98.9	5.459	5.222	0.237	0.866	81289		3.08(2.57-2.57)		
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.450	5.222	0.228	0.865	250069	0.1822			
298.9 > 98.9	5.459	5.222	0.237	0.866	81289		3.08(1.80-3.35)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.885	5.695	0.190		24532160	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.894	5.686	0.208	1.002	503746	0.1957			
313.0 > 118.6	5.923	5.686	0.237	1.006	10193		49.42(34.05-63.23)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.292	6.121	0.171	0.949	696517	0.2034			
363.0 > 168.9	6.292	6.121	0.171	0.949	191107		3.64(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.300	6.130	0.170		2600098	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.301	6.130	0.171	1.000	290699	0.1898			R
398.9 > 98.9	6.291	6.130	0.161	0.999	100556		2.89(1.30-2.41)		
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.301	6.130	0.171	1.000	290699	0.1898			
398.9 > 98.9	6.291	6.130	0.161	0.999	100556		2.89(1.85-1.85)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.621	6.460	0.161	0.959	193401	0.1743			
449.0 > 98.9	6.621	6.460	0.161	0.959	76248		2.54(0.00-0.00)		
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.621	6.460	0.161	0.959	193401	0.1743			
449.0 > 98.9	6.621	6.460	0.161	0.959	76248		2.54(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.631	6.470	0.161	1.000	644366	0.1863			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.631	6.470	0.161		33916758	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.632	6.471	0.161	1.000	899444	0.1846			
413.0 > 169.0	6.632	6.471	0.161	1.000	303395		2.96(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.894	6.742	0.152	0.999	121681	0.1731			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.904	6.743	0.161		9276020	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.904	6.743	0.161	1.000	290513	0.1852			R
498.9 > 98.9	6.885	6.743	0.142	0.997	81976		3.54(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.914	6.753	0.161		26504778	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.924	6.753	0.171	1.001	740676	0.2065			
463.0 > 218.9	6.905	6.753	0.152	0.999	111132		6.66(5.59-10.38)		
23 Perfluorodecanoic acid									R
513.0 > 468.9	7.159	6.998	0.161	1.000	647522	0.2022			R
513.0 > 219.0	7.159	6.998	0.161	1.000	83452		7.76(10.49-19.48)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.158	7.007	0.151		27209809	10.0			
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.347	7.186	0.161	1.064	277874	0.1934			
598.9 > 99.0	7.356	7.186	0.170	1.066	72213		3.85(2.84-2.84)		
25 Perfluorodecane Sulfonate									R
598.9 > 79.9	7.347	7.186	0.161	1.064	277874	0.1934			R
598.9 > 99.0	7.356	7.186	0.170	1.066	72213		3.85(1.99-3.69)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.366	7.215	0.151		17167663	10.0			
27 Perfluoroundecanoic acid									
563.0 > 518.9	7.366	7.215	0.151	1.000	588700	0.1901			
563.0 > 268.9	7.366	7.215	0.151	1.000	96854		6.08(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.545	7.393	0.152		35167056	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.545	7.394	0.151	1.000	915560	0.1966			
613.0 > 168.9	7.545	7.394	0.151	1.000	122464		7.48(5.96-11.06)		
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.696	7.545	0.151	1.020	905331	0.1977			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.642	7.529	0.113		25779733	10.0			
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.643	7.530	0.113	1.000	590186	0.2016			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.829	7.677	0.152	1.038	459487	0.2142			
712.9 > 169.0	7.829	7.677	0.152	1.038	71115		6.46(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Reagents:

PFC_CAL_stock_00033	Amount Added: 10.00	Units: uL
PFC-IS_00021	Amount Added: 20.00	Units: uL

Report Date: 07-Jun-2016 14:08:33 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06008.d

Injection Date: 06-Jun-2016 14:49:59 Instrument ID: LC_LCMS5

Lims ID: STD0002

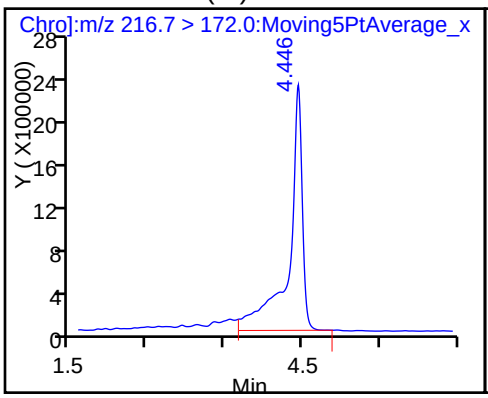
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 3

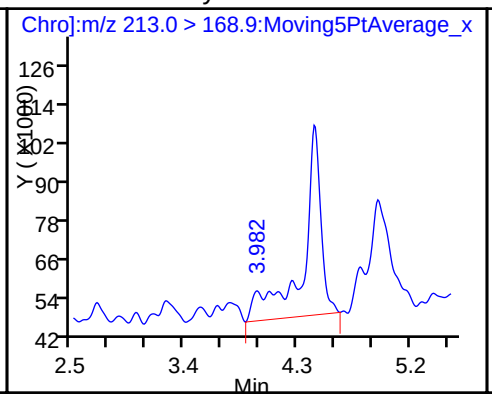
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

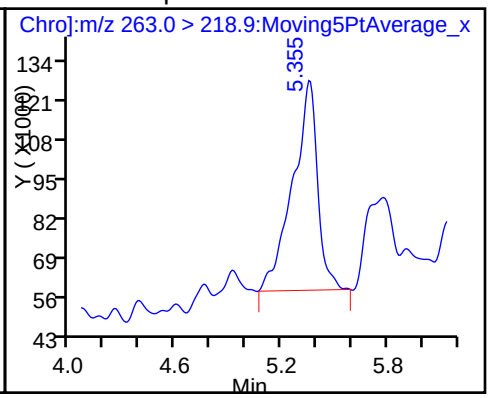
* 1 13C4 PFBA (IS)



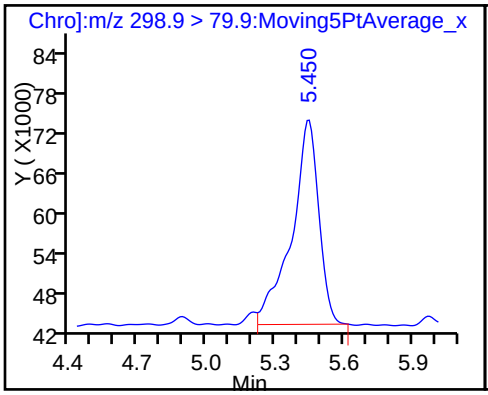
2 Perfluorobutyric acid



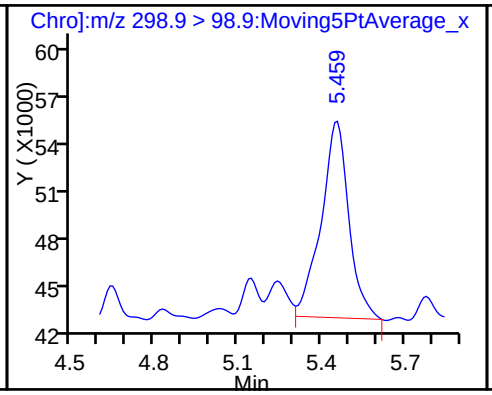
3 Perfluoropentanoic acid



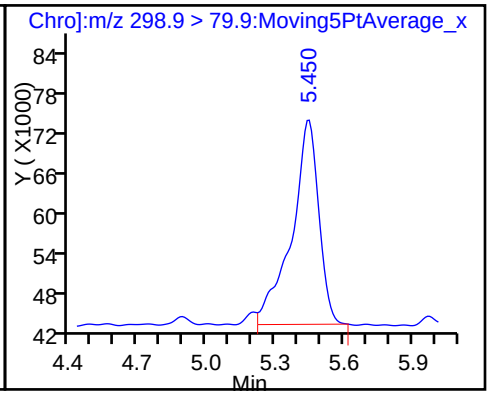
5 Perfluorobutanesulfonic acid



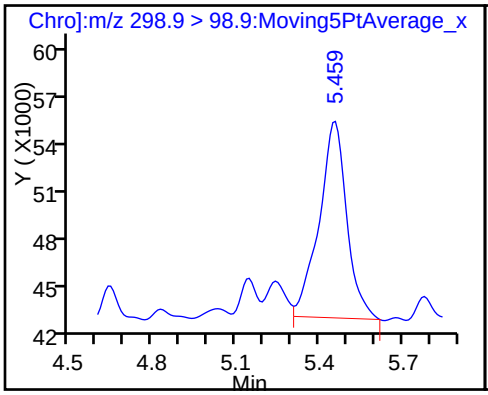
5 Perfluorobutanesulfonic acid



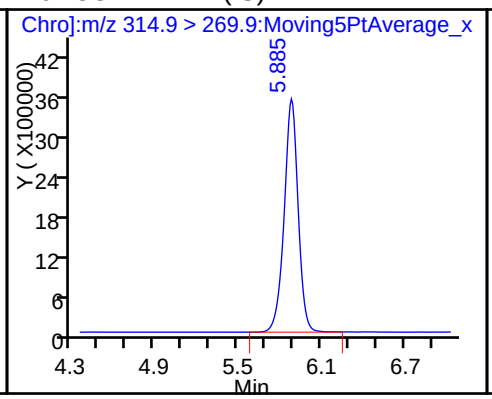
4 Perfluorobutane Sulfonate



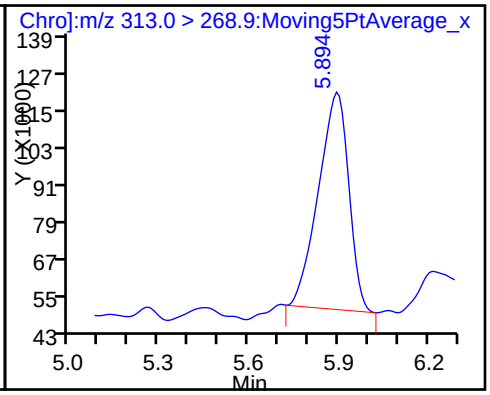
4 Perfluorobutane Sulfonate



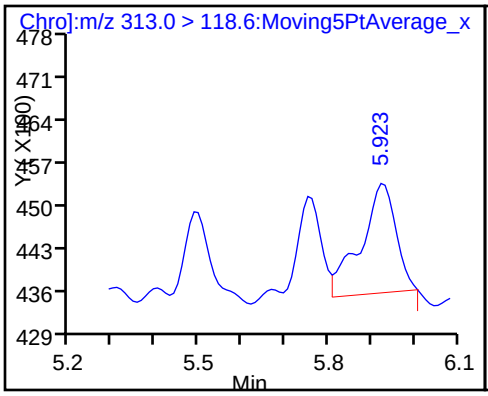
* 6 13C2 PFHxA (IS)



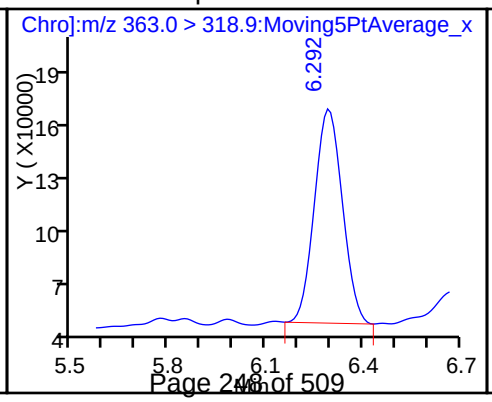
7 Perfluorohexanoic acid



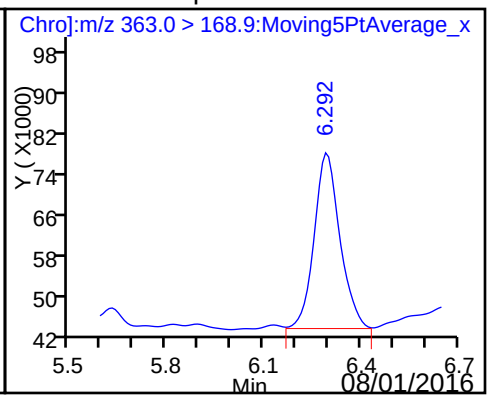
7 Perfluorohexanoic acid



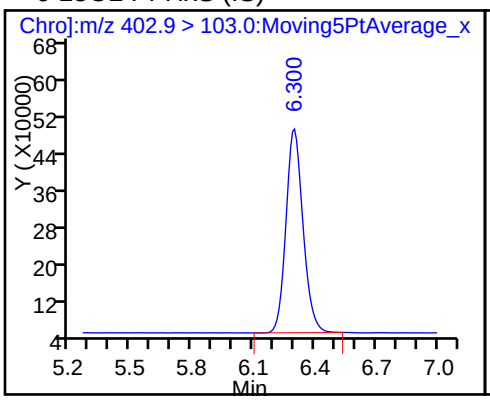
8 Perfluoroheptanoic acid



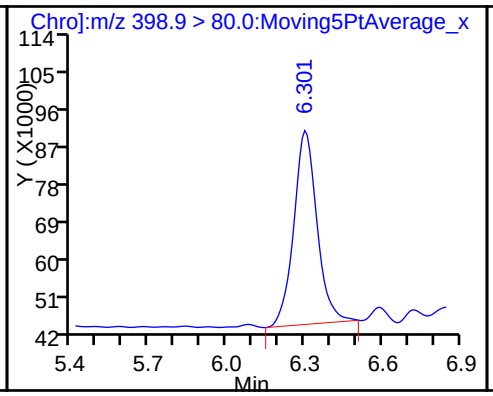
8 Perfluoroheptanoic acid



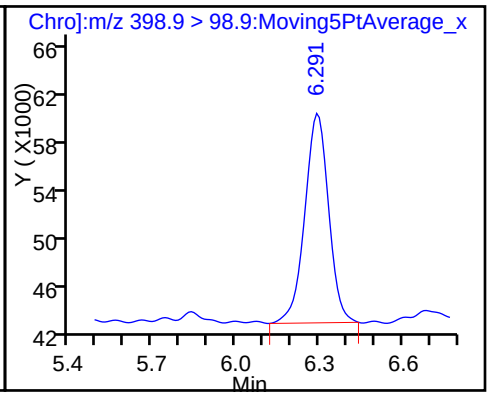
* 9 18O2 PFHxS (IS)



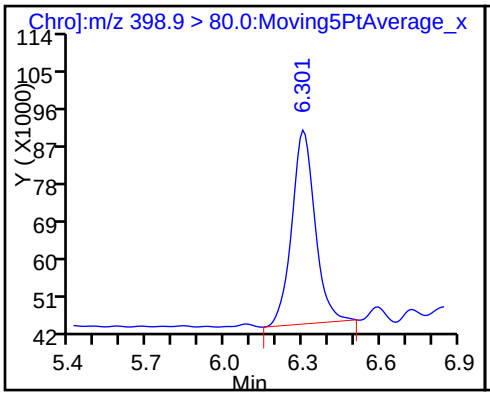
10 Perfluorohexane Sulfonate



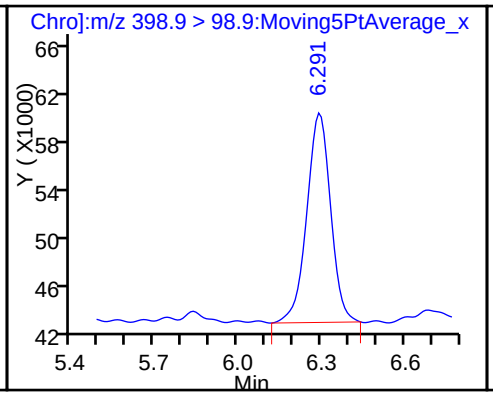
10 Perfluorohexane Sulfonate



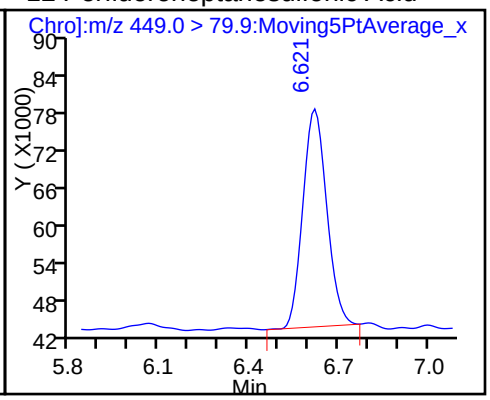
11 Perfluorohexanesulfonic acid



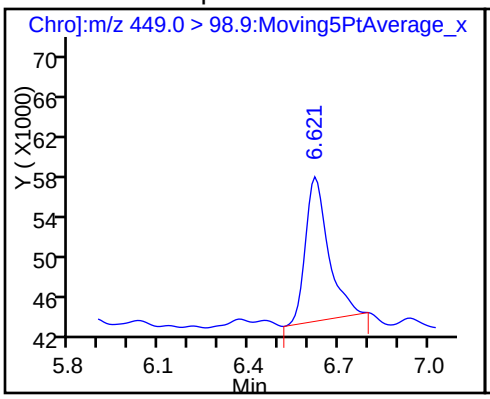
11 Perfluorohexanesulfonic acid



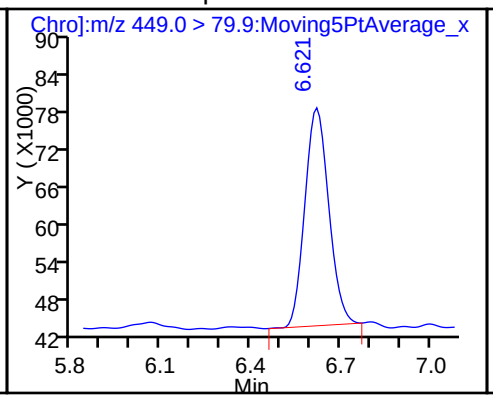
12 Perfluoroheptanesulfonic Acid



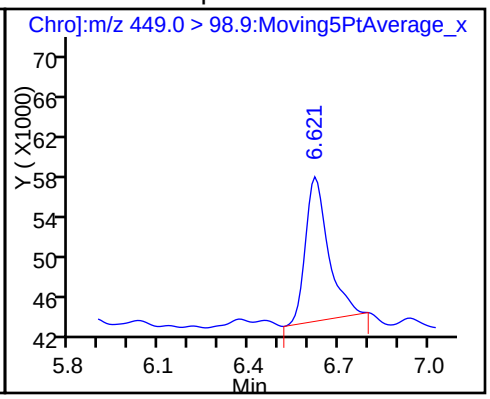
12 Perfluoroheptanesulfonic Acid



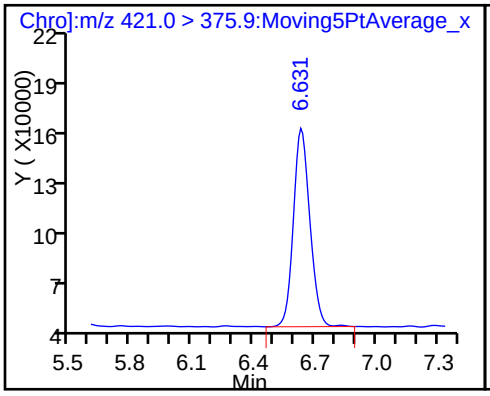
13 Perfluoroheptane Sulfonate



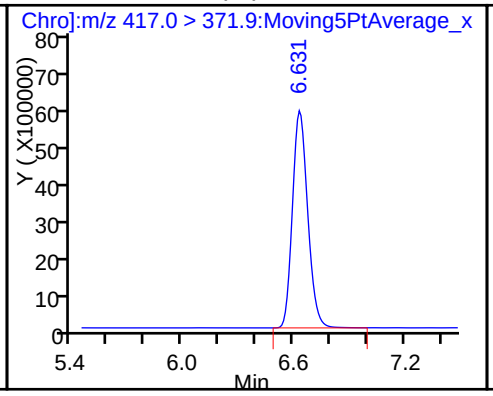
13 Perfluoroheptane Sulfonate



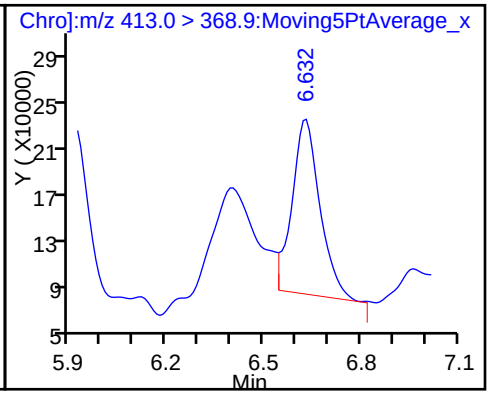
$ 14 13C8 PFOA



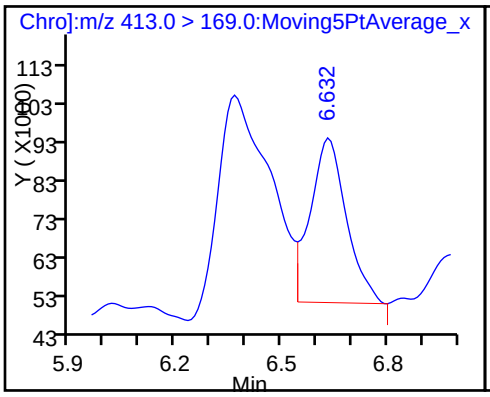
* 15 13C4 PFOA (IS)



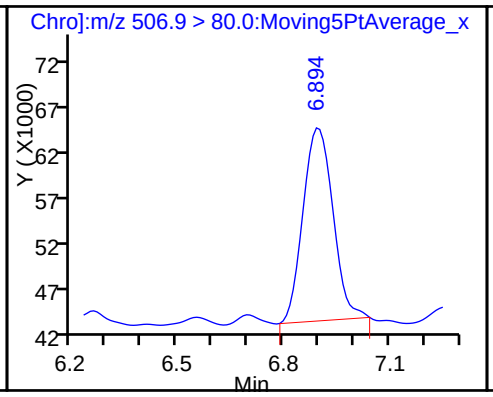
16 Perfluorooctanoic acid



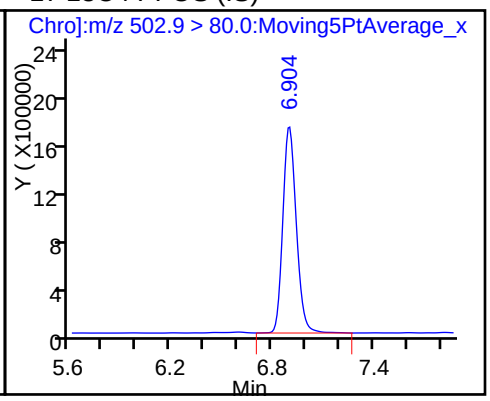
16 Perfluorooctanoic acid



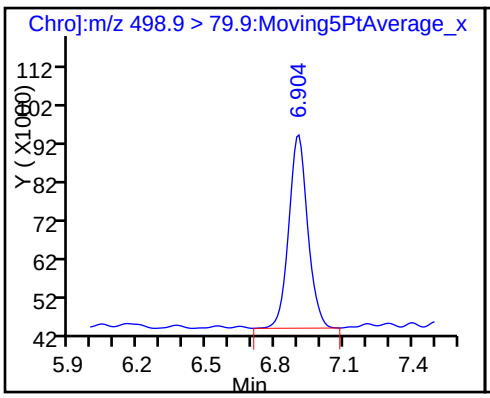
$ 18 13C8 PFOS



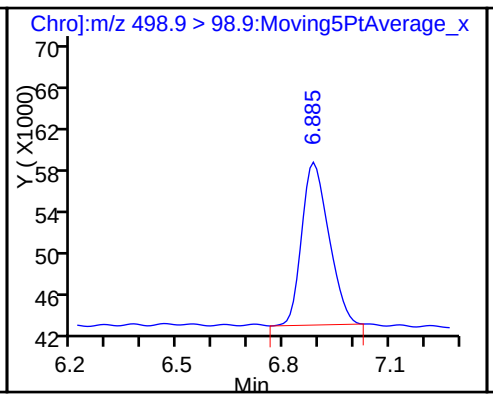
* 17 13C4 PFOS (IS)



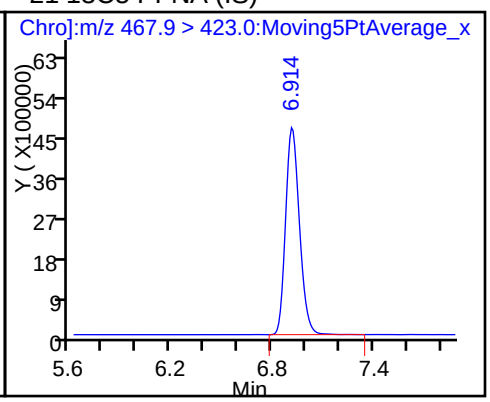
19 Perfluorooctane sulfonic acid



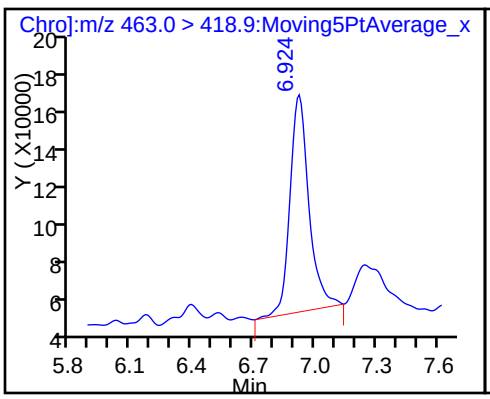
19 Perfluorooctane sulfonic acid



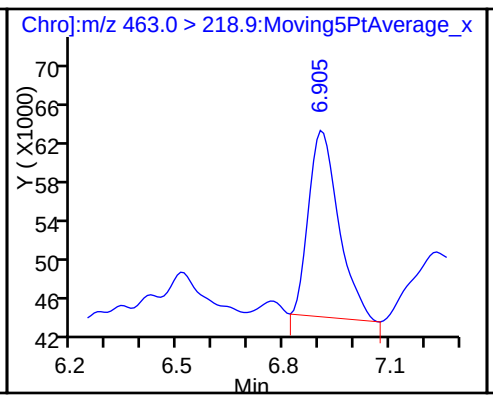
* 21 13C5 PFNA (IS)



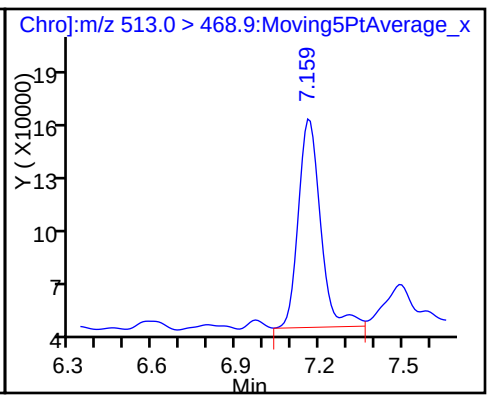
20 Perfluorononanoic acid



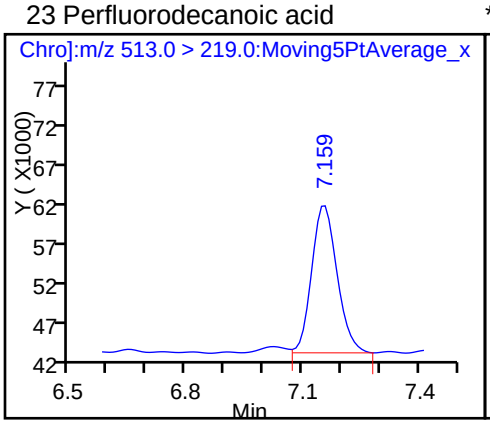
20 Perfluorononanoic acid



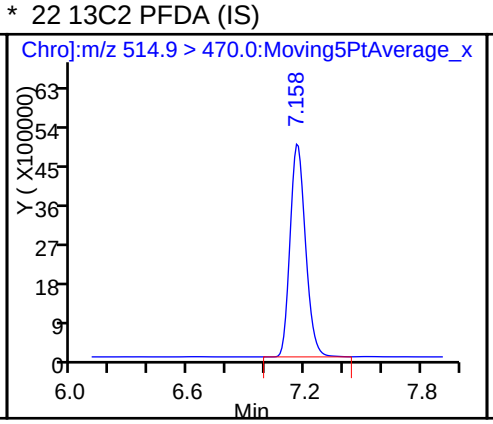
23 Perfluorodecanoic acid



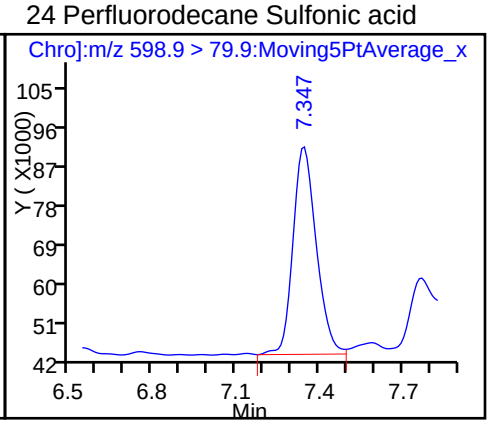
23 Perfluorodecanoic acid



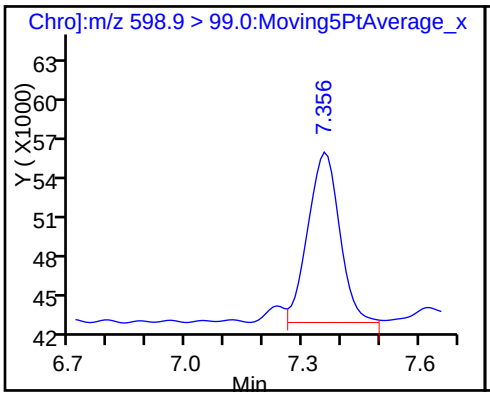
* 22 13C2 PFDA (IS)



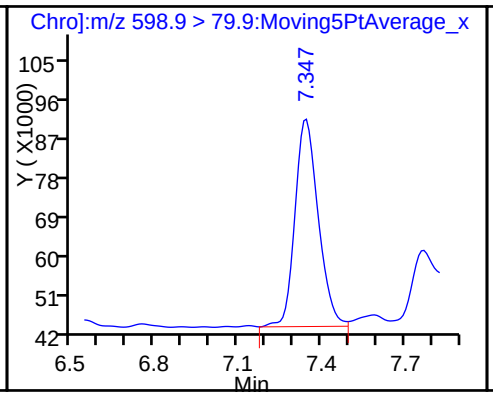
24 Perfluorodecane Sulfonic acid



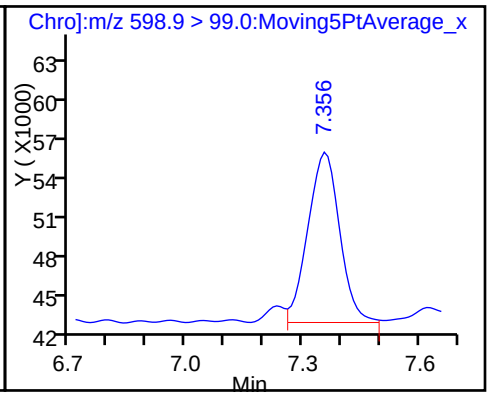
24 Perfluorodecane Sulfonic acid



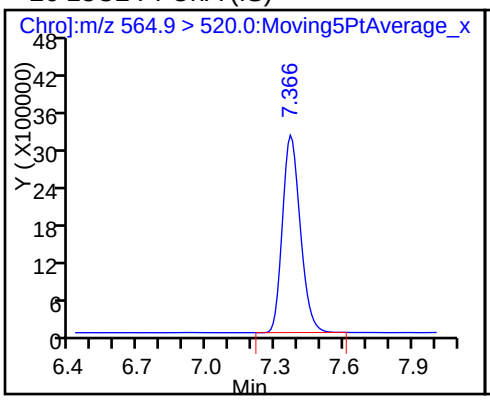
25 Perfluorodecane Sulfonate



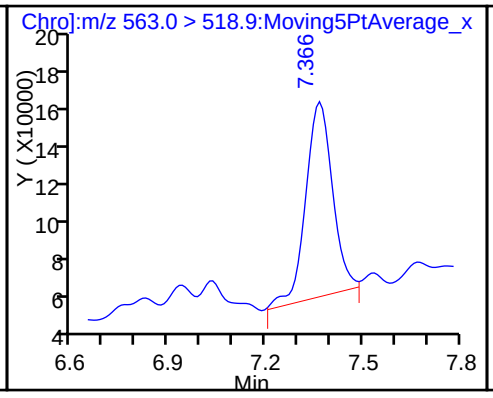
25 Perfluorodecane Sulfonate



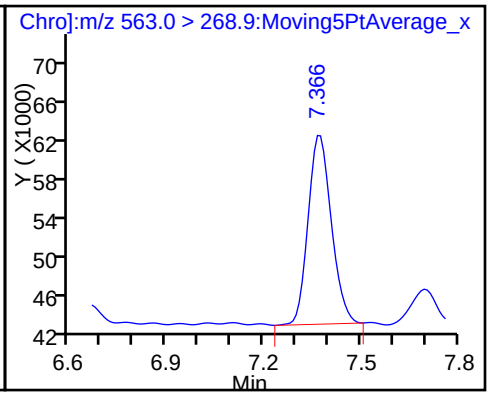
* 26 13C2 PFUnA (IS)



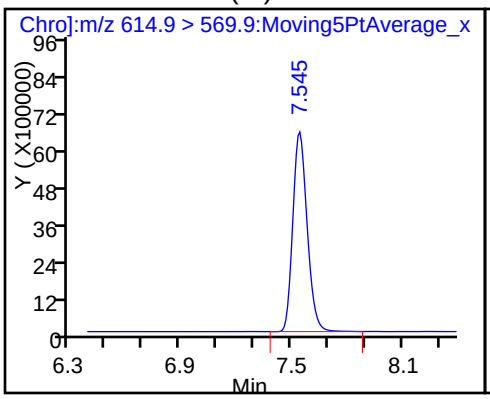
27 Perfluoroundecanoic acid



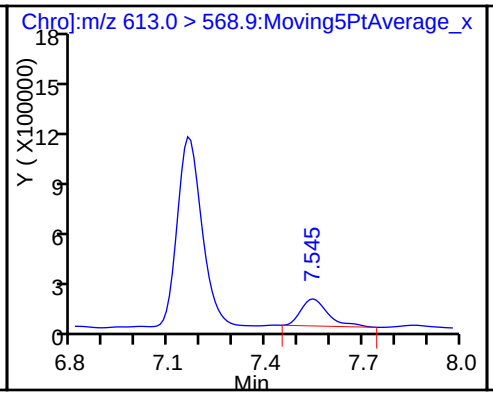
27 Perfluoroundecanoic acid



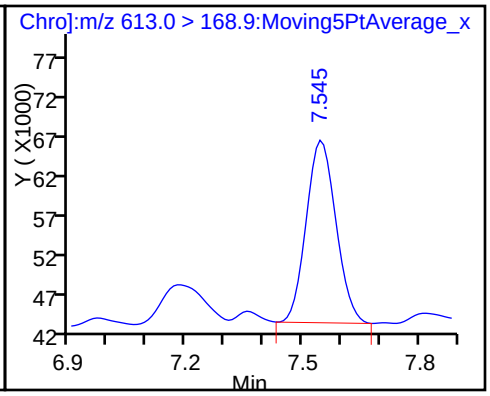
* 28 13C2 PFDoA (IS)



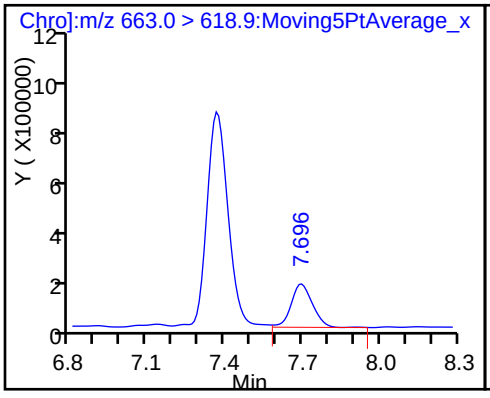
29 Perfluorododecanoic acid



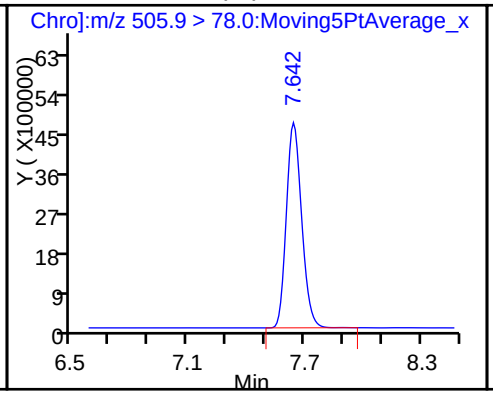
29 Perfluorododecanoic acid



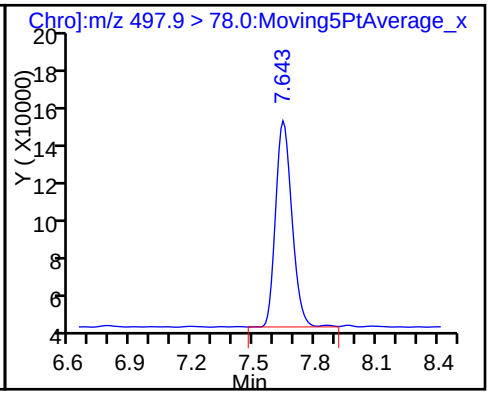
30 Perfluorotridecanoic acid



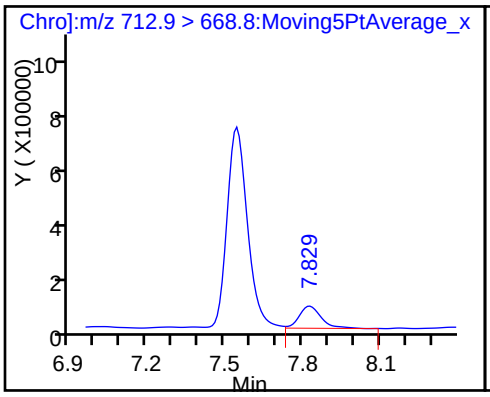
* 31 13C8 FOSA (IS)



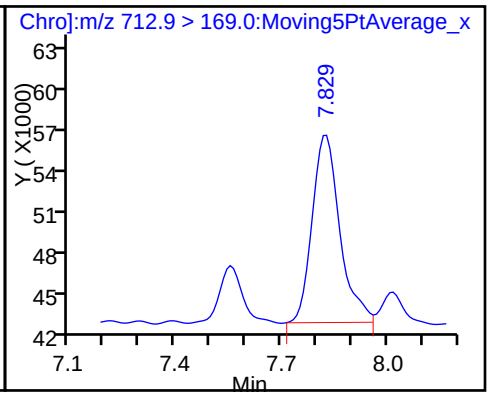
32 Perfluorooctane Sulfonamide



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06009.d
Lims ID: STD0005
Client ID:
Sample Type: IC Calib Level: 2
Inject. Date: 06-Jun-2016 15:02:17 ALS Bottle#: 0 Worklist Smp#: 4
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: STD 0005, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 07-Jun-2016 14:08:40 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK003

First Level Reviewer: meyera Date: 07-Jun-2016 12:59:51

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.172	4.020	0.152		26769557	10.0			
2 Perfluorobutyric acid									M
213.0 > 168.9	4.172	4.020	0.152	1.000	1295896	0.4546			M
3 Perfluoropentanoic acid									
263.0 > 218.9	5.242	5.100	0.142	0.899	1319121	0.4247			
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.355	5.222	0.133	0.855	623522	0.4290			
298.9 > 98.9	5.364	5.222	0.142	0.857	199278		3.13(2.57-2.57)		
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.355	5.222	0.133	0.855	623522	0.4290			
298.9 > 98.9	5.364	5.222	0.142	0.857	199278		3.13(1.80-3.35)		
7 Perfluorohexanoic acid									
313.0 > 268.9	5.828	5.686	0.142	1.000	1271251	0.5176			
313.0 > 118.6	5.819	5.686	0.133	0.998	31432		40.44(34.05-63.23)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.828	5.695	0.133		24971837	10.0			
8 Perfluoroheptanoic acid									R
363.0 > 318.9	6.254	6.121	0.133	0.947	1648753	0.4872			R
363.0 > 168.9	6.263	6.121	0.142	0.949	498178		3.31(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.263	6.130	0.133		2680752	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.263	6.130	0.133	1.000	597251	0.4636			R
398.9 > 98.9	6.272	6.130	0.142	1.002	202471		2.95(1.30-2.41)		
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.263	6.130	0.133	1.000	597251	0.4636			
398.9 > 98.9	6.272	6.130	0.142	1.002	202471		2.95(1.85-1.85)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.593	6.460	0.133	0.959	677069	0.5711			
449.0 > 98.9	6.593	6.460	0.133	0.959	152739		4.43(0.00-0.00)		
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.593	6.460	0.133	0.959	677069	0.5711			
449.0 > 98.9	6.593	6.460	0.133	0.959	152739		4.43(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.603	6.470	0.133	1.000	1713329	0.5331			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.603	6.470	0.133		36529272	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.603	6.471	0.132	1.000	2545486	0.6020			
413.0 > 169.0	6.613	6.471	0.142	1.001	723773		3.52(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.875	6.742	0.133	1.000	352518	0.5490			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.875	6.743	0.132		9508598	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.876	6.743	0.133	1.000	645716	0.4859			R
498.9 > 98.9	6.876	6.743	0.133	1.000	212089		3.04(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.895	6.753	0.142		27647688	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.895	6.753	0.142	1.000	1587923	0.4706			
463.0 > 218.9	6.895	6.753	0.142	1.000	280755		5.66(5.59-10.38)		
23 Perfluorodecanoic acid									R
513.0 > 468.9	7.140	6.998	0.142	1.000	1445379	0.4755			R
513.0 > 219.0	7.130	6.998	0.132	0.999	198159		7.29(10.49-19.48)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.140	7.007	0.133		28209499	10.0			
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.318	7.186	0.132	1.064	654135	0.4948			
598.9 > 99.0	7.318	7.186	0.132	1.064	165840		3.94(2.84-2.84)		
25 Perfluorodecane Sulfonate									R
598.9 > 79.9	7.318	7.186	0.132	1.064	654135	0.4948			R
598.9 > 99.0	7.318	7.186	0.132	1.064	165840		3.94(1.99-3.69)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.338	7.215	0.123		18315536	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.338	7.215	0.123	1.000	1566038	0.5533			R
563.0 > 268.9	7.347	7.215	0.132	1.001	163382		9.59(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.517	7.393	0.124		36122892	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.517	7.394	0.123	1.000	2159339	0.5269			
613.0 > 168.9	7.517	7.394	0.123	1.000	311344		6.94(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.614	7.529	0.085		27418934	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.615	7.530	0.085	1.000	1495146	0.4932			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.668	7.545	0.123	1.020	1968702	0.5093			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.800	7.677	0.123	1.038	958729	0.4424			
712.9 > 169.0	7.800	7.677	0.123	1.038	162064		5.92(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Review Flags

M - Manually Integrated

Reagents:

PFC_CAL_stock_00033	Amount Added:	25.00	Units: uL
PFC-IS_00021	Amount Added:	20.00	Units: uL

Report Date: 07-Jun-2016 14:08:40 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06009.d

Injection Date: 06-Jun-2016 15:02:17 Instrument ID: LC_LCMS5

Lims ID: STD0005

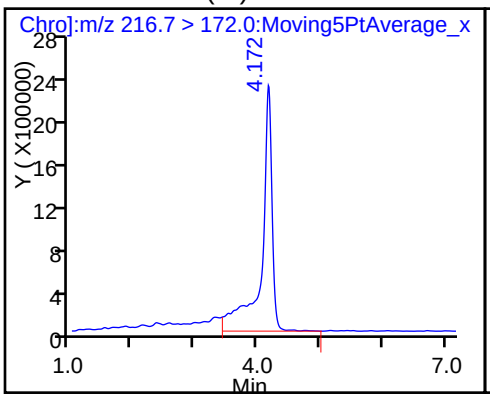
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 4

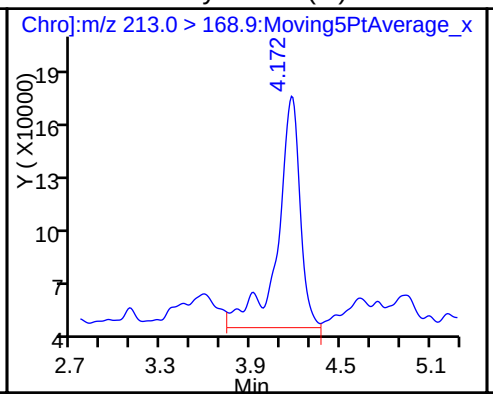
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

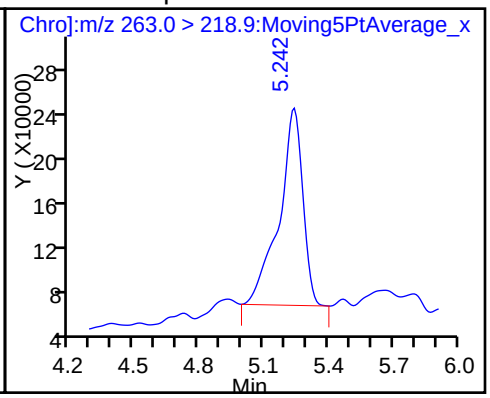
* 1 13C4 PFBA (IS)



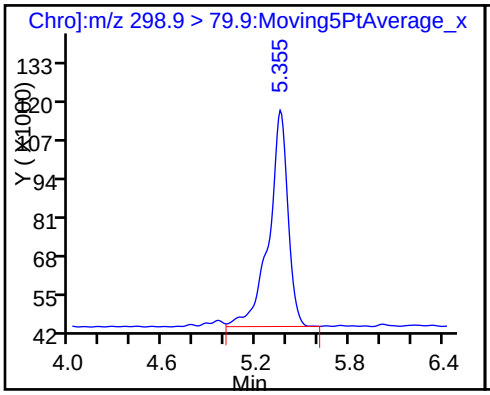
2 Perfluorobutyric acid (M)



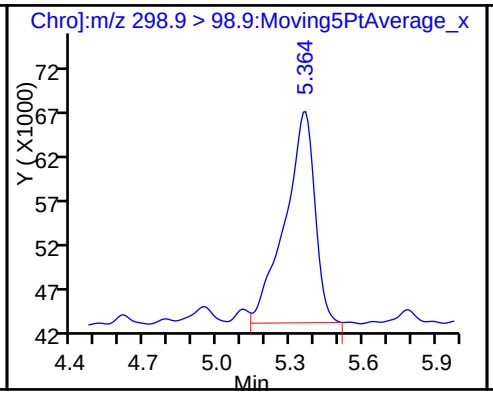
3 Perfluoropentanoic acid



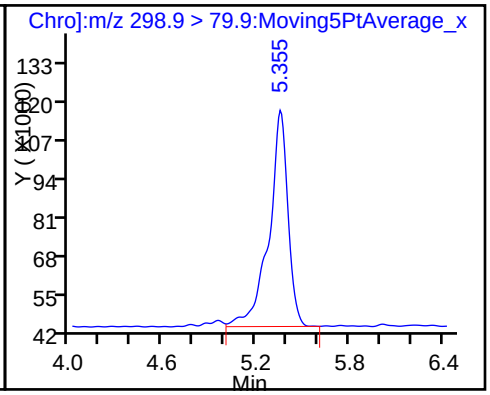
5 Perfluorobutanesulfonic acid



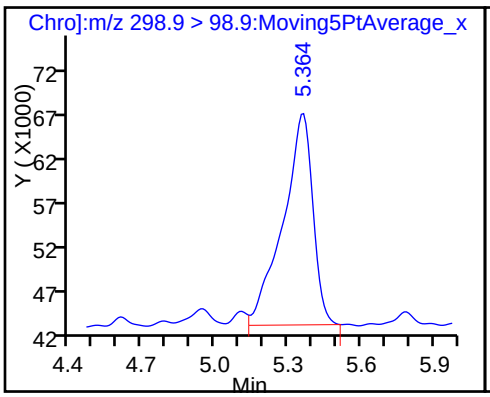
5 Perfluorobutanesulfonic acid



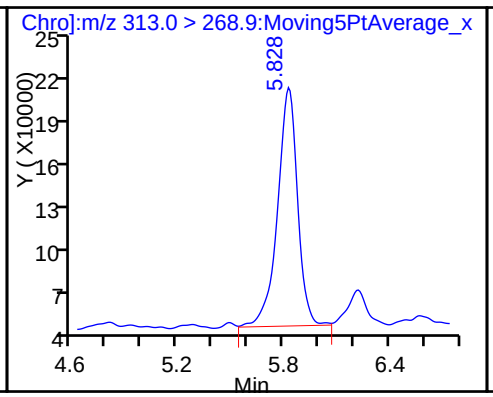
4 Perfluorobutane Sulfonate



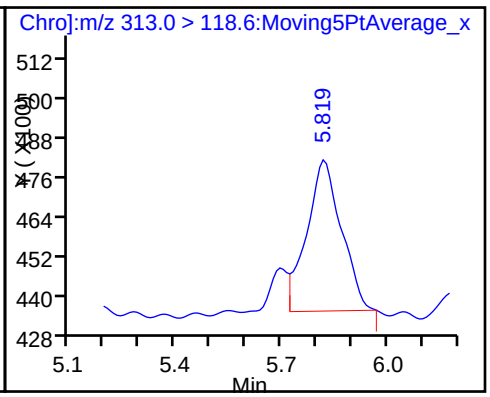
4 Perfluorobutane Sulfonate



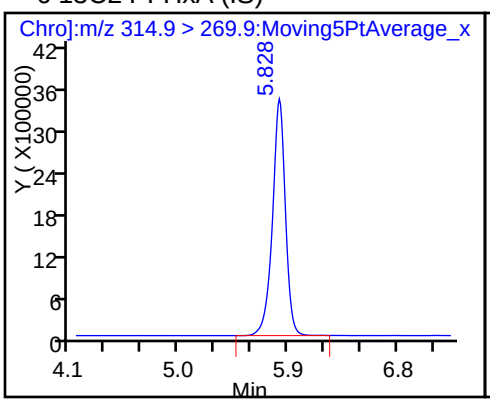
7 Perfluorohexanoic acid



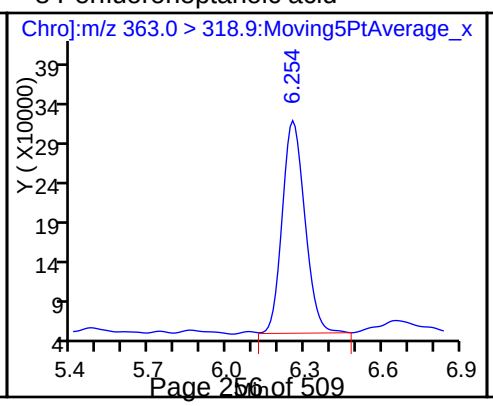
7 Perfluorohexanoic acid



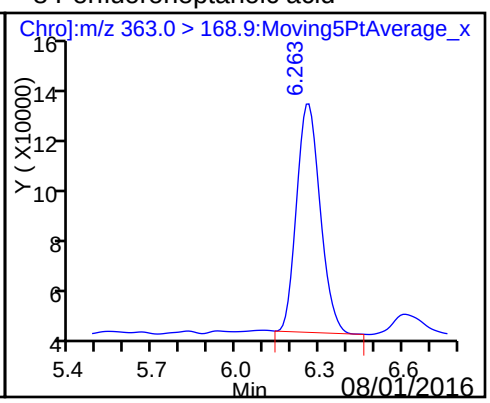
* 6 13C2 PFHxA (IS)



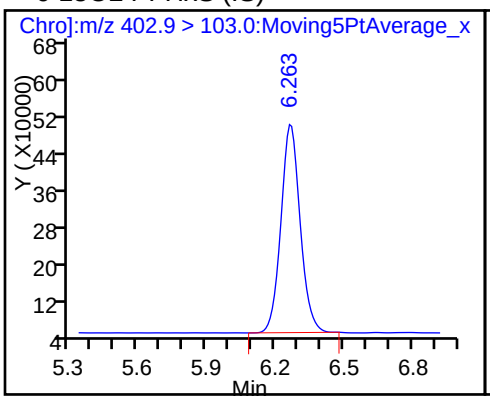
8 Perfluoroheptanoic acid



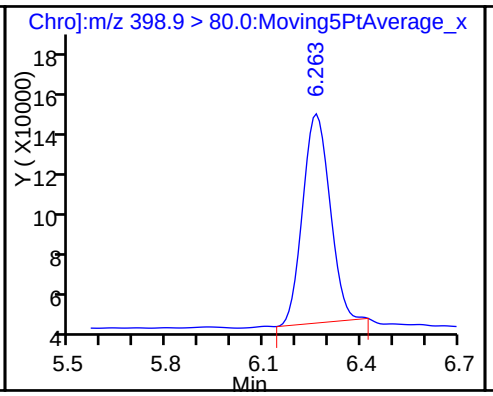
8 Perfluoroheptanoic acid



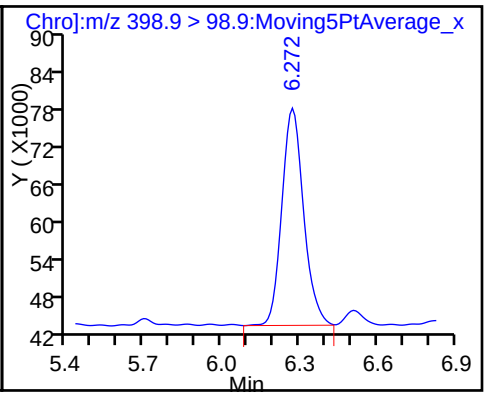
* 9 18O2 PFHxS (IS)



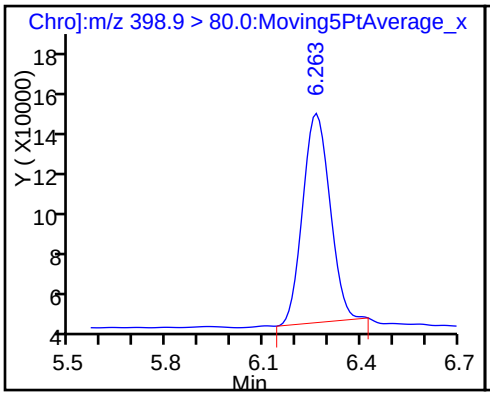
10 Perfluorohexane Sulfonate



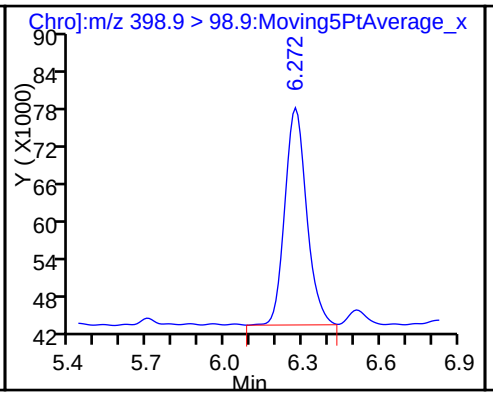
10 Perfluorohexane Sulfonate



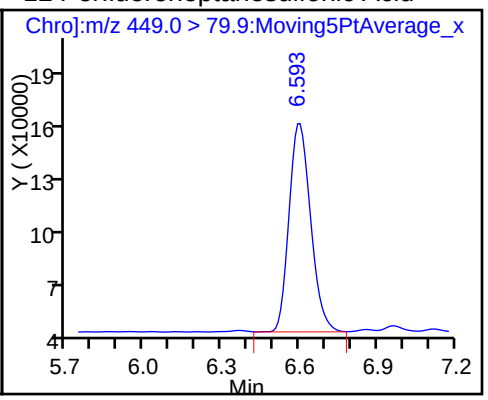
11 Perfluorohexanesulfonic acid



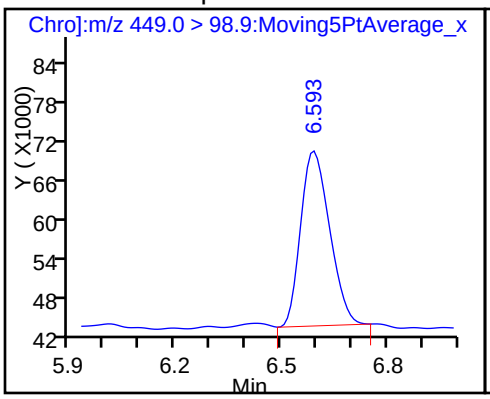
11 Perfluorohexanesulfonic acid



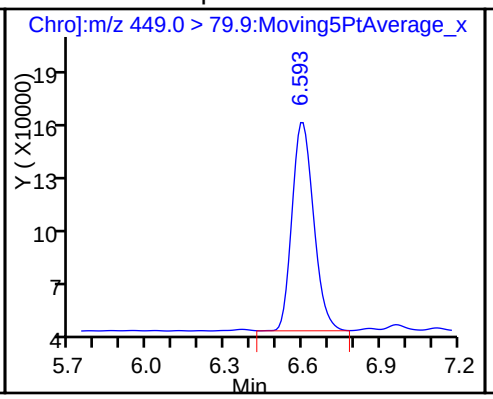
12 Perfluoroheptanesulfonic Acid



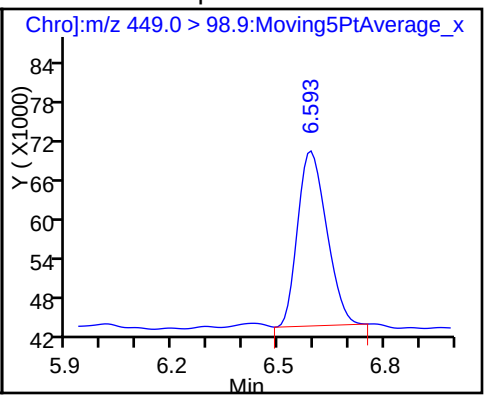
12 Perfluoroheptanesulfonic Acid



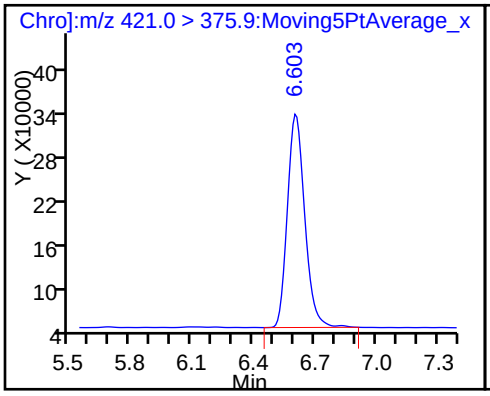
13 Perfluoroheptane Sulfonate



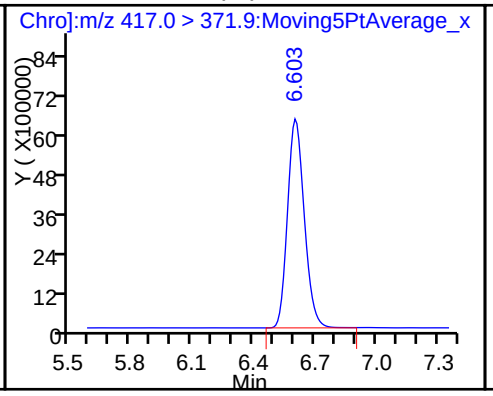
13 Perfluoroheptane Sulfonate



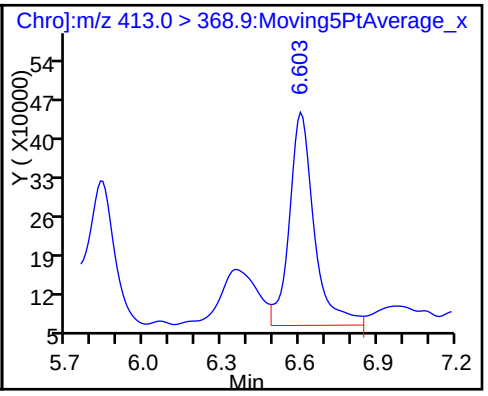
$ 14 13C8 PFOA



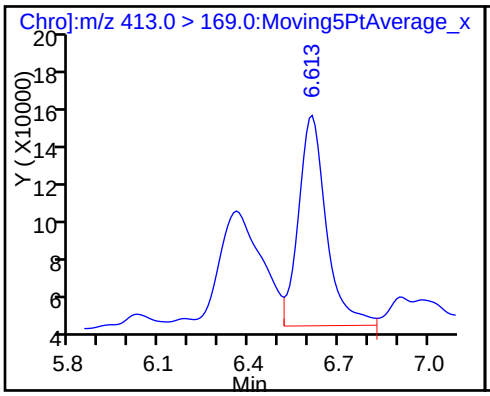
* 15 13C4 PFOA (IS)



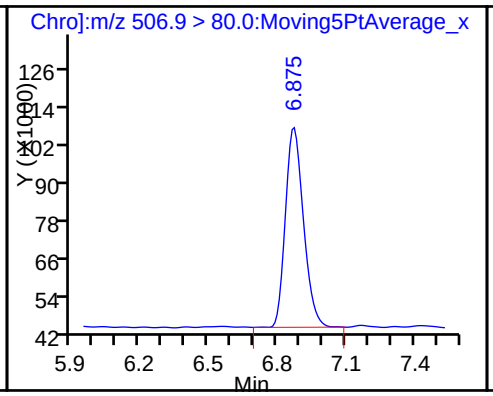
16 Perfluorooctanoic acid



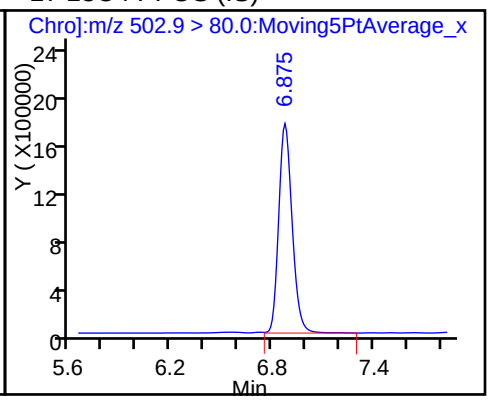
16 Perfluorooctanoic acid



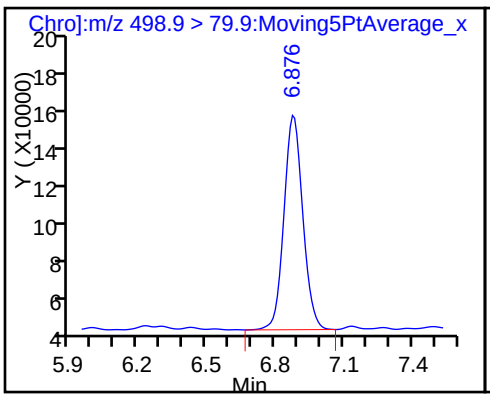
$ 18 13C8 PFOS



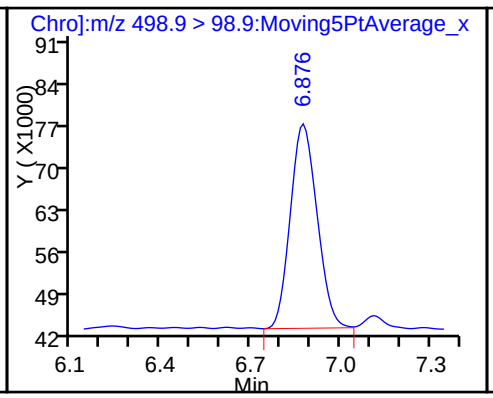
* 17 13C4 PFOS (IS)



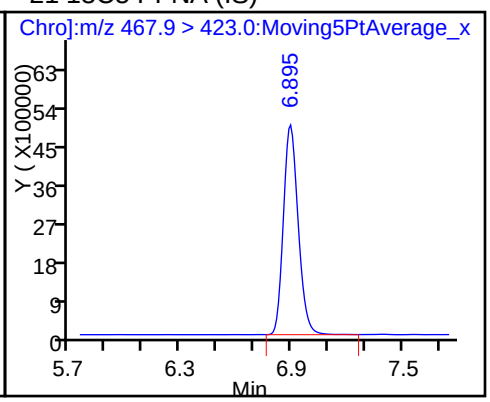
19 Perfluorooctane sulfonic acid



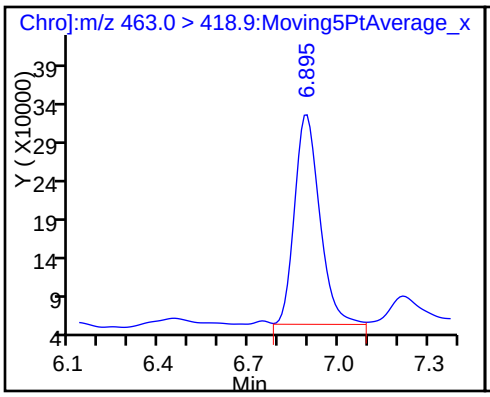
19 Perfluorooctane sulfonic acid



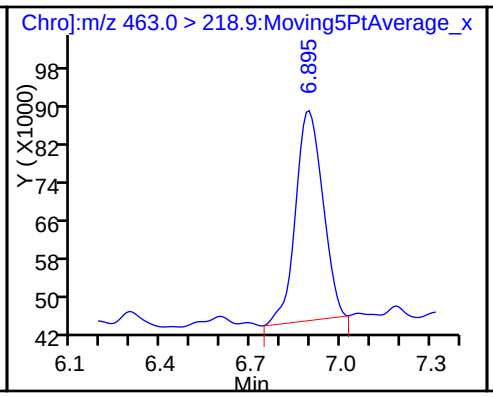
* 21 13C5 PFNA (IS)



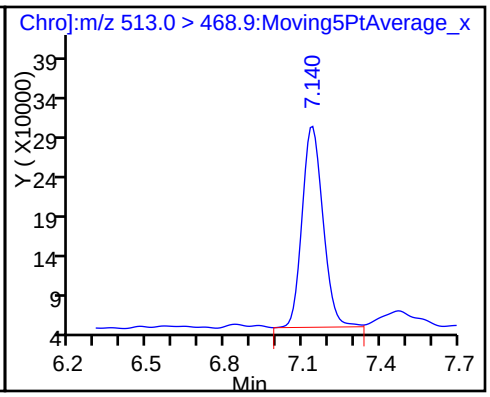
20 Perfluorononanoic acid



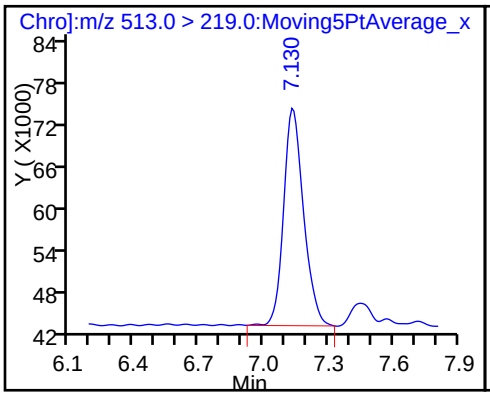
20 Perfluorononanoic acid



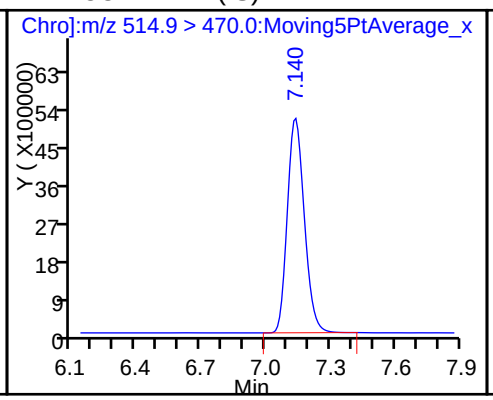
23 Perfluorodecanoic acid



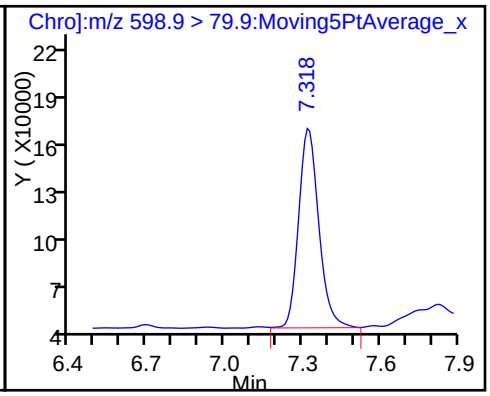
23 Perfluorodecanoic acid



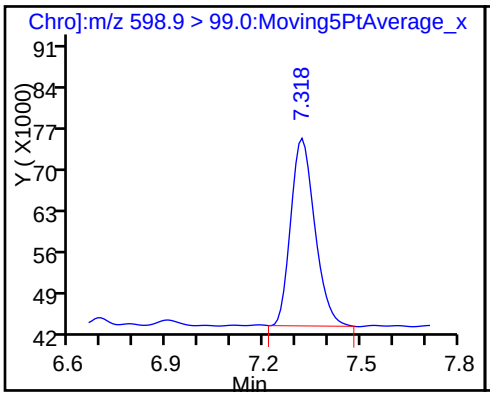
* 22 13C2 PFDA (IS)



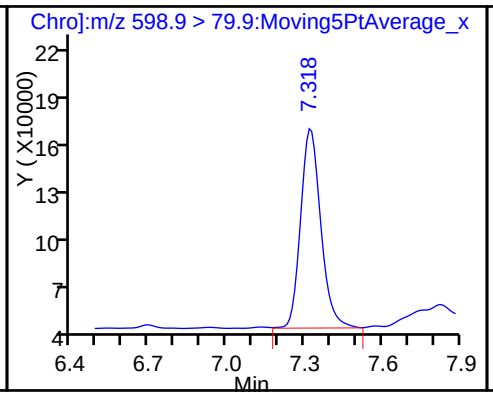
24 Perfluorodecane Sulfonic acid



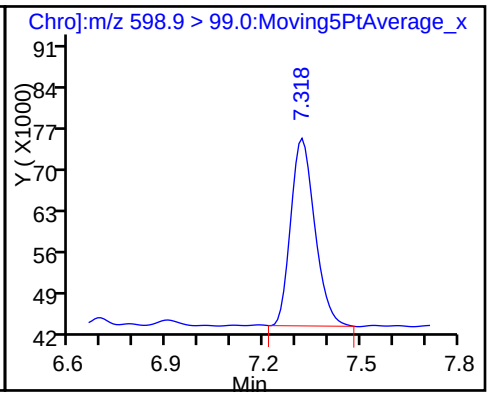
24 Perfluorodecane Sulfonic acid



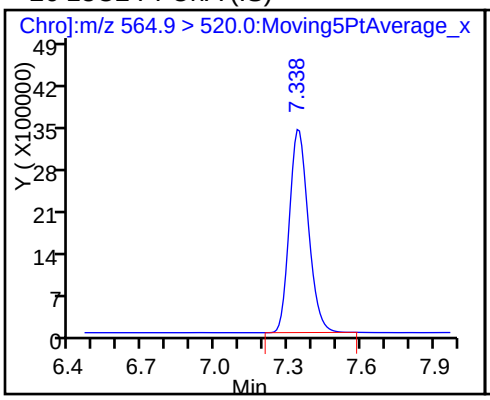
25 Perfluorodecane Sulfonate



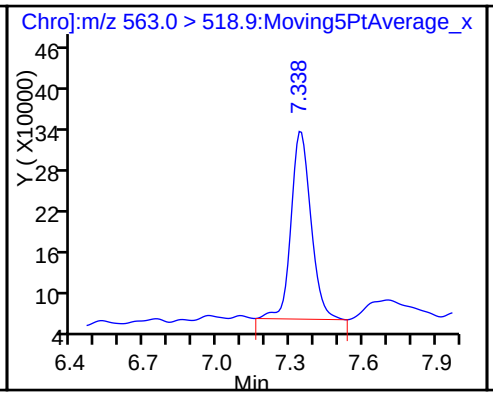
25 Perfluorodecane Sulfonate



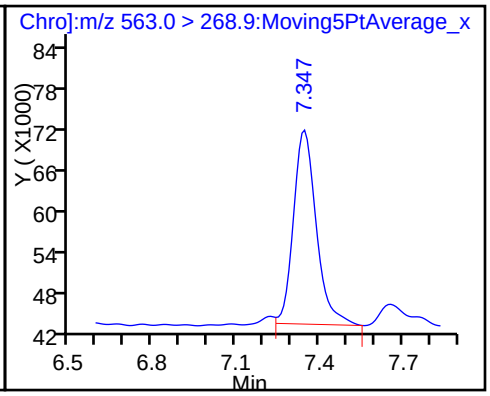
* 26 13C2 PFUnA (IS)



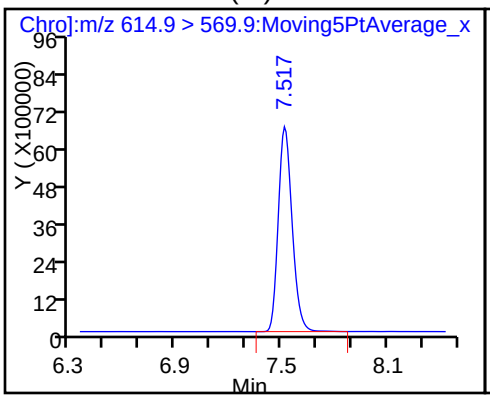
27 Perfluoroundecanoic acid



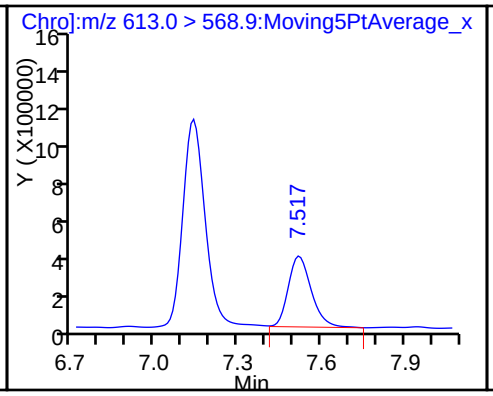
27 Perfluoroundecanoic acid



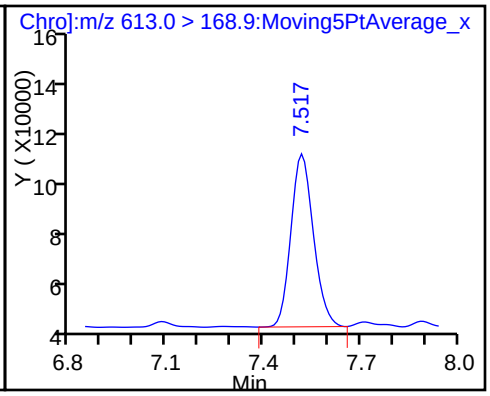
* 28 13C2 PFDoA (IS)



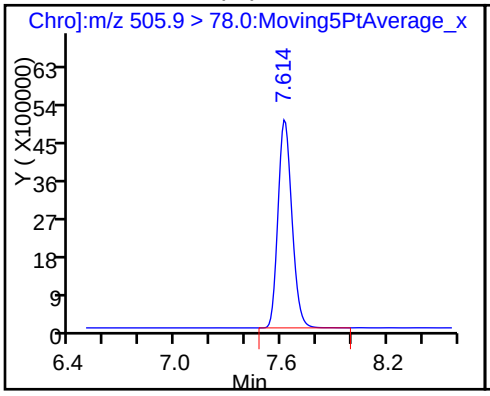
29 Perfluorododecanoic acid



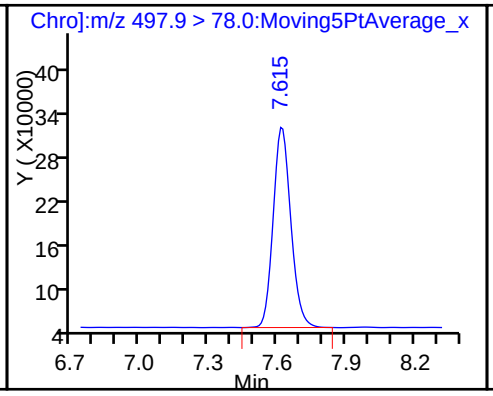
29 Perfluorododecanoic acid



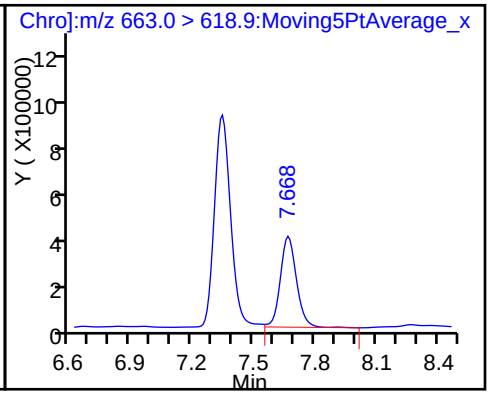
* 31 13C8 FOSA (IS)



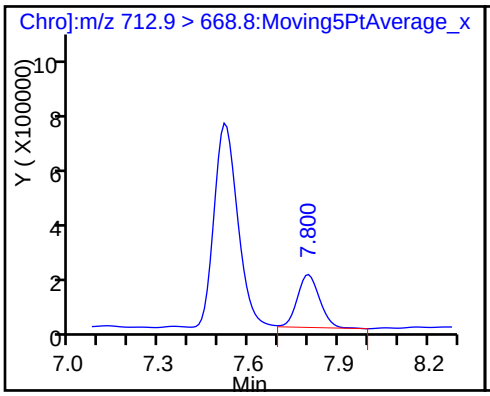
32 Perfluorooctane Sulfonamide



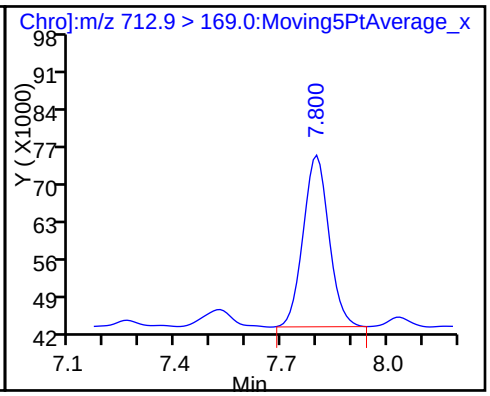
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



Manual Integration/User Assign Peak Report

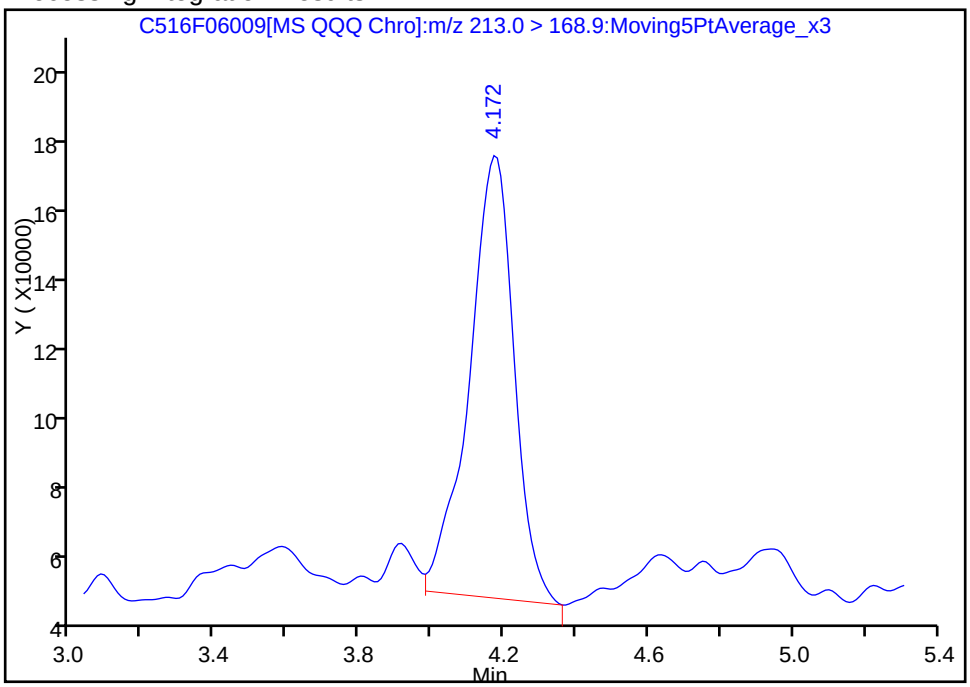
TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06009.d
Injection Date: 06-Jun-2016 15:02:17 Instrument ID: LC_LCMS5
Lims ID: STD0005
Client ID:
Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 4
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Method: 8321_PFC Limit Group: LC - PFC
Column: Detector MS QQQ

2 Perfluorobutyric acid, CAS: 375-22-4

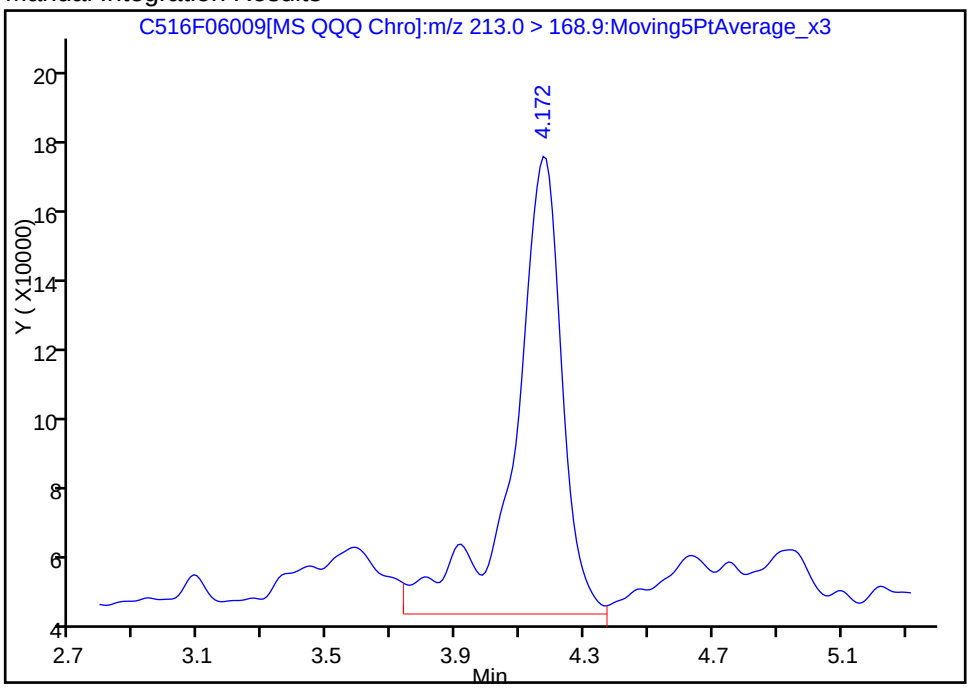
Processing Integration Results

RT: 4.17
Area: 1029041
Amount: 0.374913
Amount Units: ug/L



Manual Integration Results

RT: 4.17
Area: 1295896
Amount: 0.454566
Amount Units: ug/L



Reviewer: meyera, 07-Jun-2016 12:59:51
Audit Action: Manually Integrated
Audit Reason: Baseline

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06010.d
Lims ID: STD0010
Client ID:
Sample Type: IC Calib Level: 3
Inject. Date: 06-Jun-2016 15:14:36 ALS Bottle#: 0 Worklist Smp#: 5
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: STD 0010, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 07-Jun-2016 14:08:47 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK003

First Level Reviewer: meyera Date: 07-Jun-2016 12:59:20

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									M
216.7 > 172.0	4.162	4.020	0.142		27598245	10.0			M
2 Perfluorobutyric acid									M
213.0 > 168.9	4.162	4.020	0.142	1.000	3038727	1.03			M
3 Perfluoropentanoic acid									
263.0 > 218.9	5.242	5.100	0.142	0.901	2769987	1.01			
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.364	5.222	0.142	0.857	1117801	0.8579			
298.9 > 98.9	5.355	5.222	0.133	0.855	317629		3.52(2.57-2.57)		
4 Perfluorobutane Sulfonate									R
298.9 > 79.9	5.364	5.222	0.142	0.857	1117801	0.8579			R
298.9 > 98.9	5.355	5.222	0.133	0.855	317629		3.52(1.80-3.35)		
7 Perfluorohexanoic acid									
313.0 > 268.9	5.819	5.686	0.133	1.000	2232965	1.01			
313.0 > 118.6	5.847	5.686	0.161	1.005	55910		39.94(34.05-63.23)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.818	5.695	0.123		22902773	10.0			
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.254	6.121	0.133	0.948	2810806	0.9641			
363.0 > 168.9	6.254	6.121	0.133	0.948	746729		3.76(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.263	6.130	0.133		2379792	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.263	6.130	0.133	1.000	996121	0.9464			R
398.9 > 98.9	6.263	6.130	0.133	1.000	385155		2.59(1.30-2.41)		
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.263	6.130	0.133	1.000	996121	0.9464			
398.9 > 98.9	6.263	6.130	0.133	1.000	385155		2.59(1.85-1.85)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.593	6.460	0.133	0.960	1051810	0.9808			
449.0 > 98.9	6.593	6.460	0.133	0.960	322325		3.26(0.00-0.00)		
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.593	6.460	0.133	0.960	1051810	0.9808			
449.0 > 98.9	6.593	6.460	0.133	0.960	322325		3.26(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.593	6.470	0.123	1.000	3153884	1.16			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.593	6.470	0.123		32501126	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.594	6.471	0.123	1.000	3529270	0.9782			
413.0 > 169.0	6.594	6.471	0.123	1.000	1161058		3.04(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.865	6.742	0.123	1.000	589580	1.05			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.866	6.743	0.123		8538322	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.866	6.743	0.123	1.000	1171224	1.06			R
498.9 > 98.9	6.866	6.743	0.123	1.000	385147		3.04(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.886	6.753	0.133		24397078	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.886	6.753	0.133	1.000	2681286	0.9404			
463.0 > 218.9	6.886	6.753	0.133	1.000	402542		6.66(5.59-10.38)		
23 Perfluorodecanoic acid									
513.0 > 468.9	7.130	6.998	0.132	1.000	2800062	1.04			
513.0 > 219.0	7.121	6.998	0.123	0.999	245568		11.40(10.49-19.48)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.130	7.007	0.123		25884523	10.0			
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.309	7.186	0.123	1.065	1047130	0.9127			
598.9 > 99.0	7.309	7.186	0.123	1.065	256407		4.08(2.84-2.84)		
25 Perfluorodecane Sulfonate									R
598.9 > 79.9	7.309	7.186	0.123	1.065	1047130	0.9127			R
598.9 > 99.0	7.309	7.186	0.123	1.065	256407		4.08(1.99-3.69)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.338	7.215	0.123		16232780	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.338	7.215	0.123	1.000	2540060	1.06			R
563.0 > 268.9	7.329	7.215	0.113	0.999	344361		7.38(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.507	7.393	0.114		32725502	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.507	7.394	0.113	1.000	3492545	0.9865			
613.0 > 168.9	7.507	7.394	0.113	1.000	493117		7.08(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.614	7.529	0.085		24736240	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.615	7.530	0.085	1.000	2697496	1.00			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.658	7.545	0.113	1.020	3270152	1.00			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.791	7.677	0.114	1.038	1783816	0.9160			
712.9 > 169.0	7.791	7.677	0.114	1.038	269547		6.62(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Review Flags

M - Manually Integrated

Reagents:

PFC_CAL_stock_00033	Amount Added:	50.00	Units: uL
PFC-IS_00021	Amount Added:	20.00	Units: uL

Report Date: 07-Jun-2016 14:08:48 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06010.d

Injection Date: 06-Jun-2016 15:14:36 Instrument ID: LC_LCMS5

Lims ID: STD0010

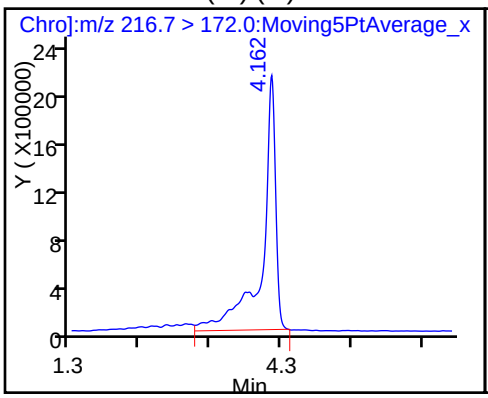
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 5

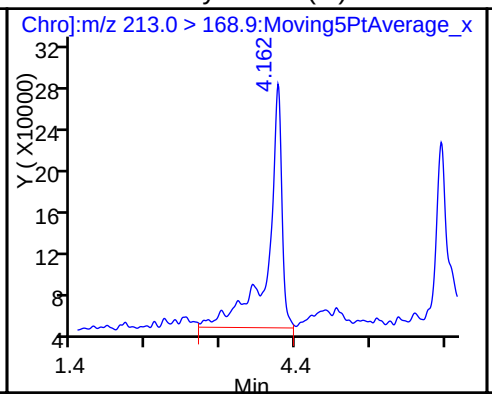
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

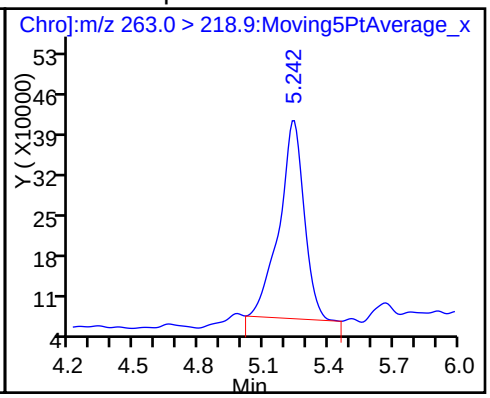
* 1 13C4 PFBA (IS) (M)



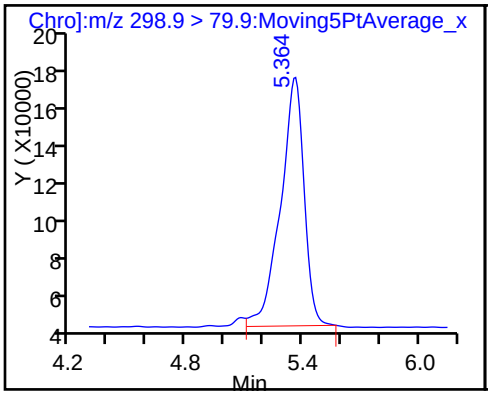
2 Perfluorobutyric acid (M)



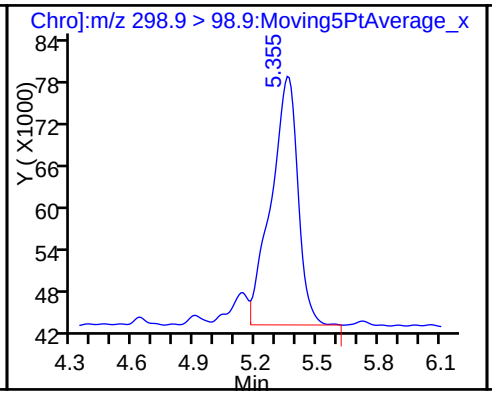
3 Perfluoropentanoic acid



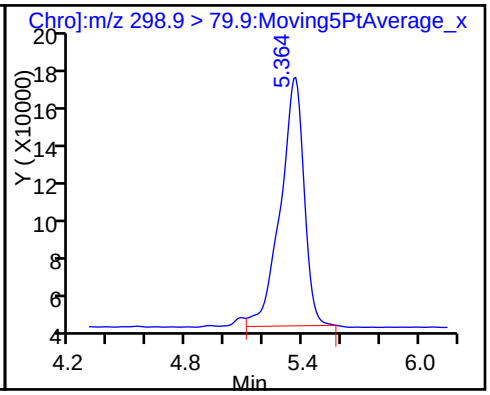
5 Perfluorobutanesulfonic acid



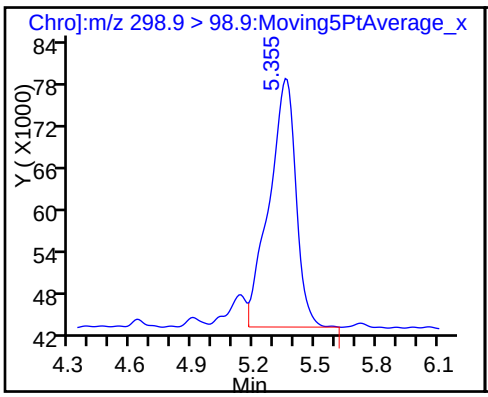
5 Perfluorobutanesulfonic acid



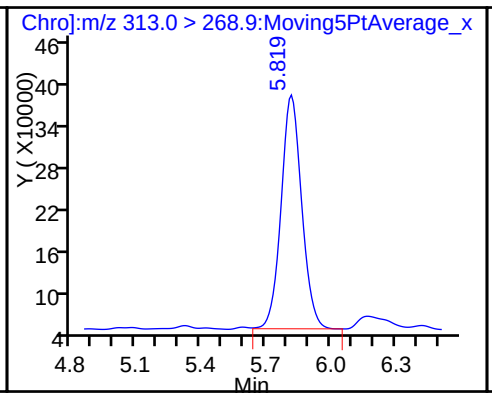
4 Perfluorobutane Sulfonate



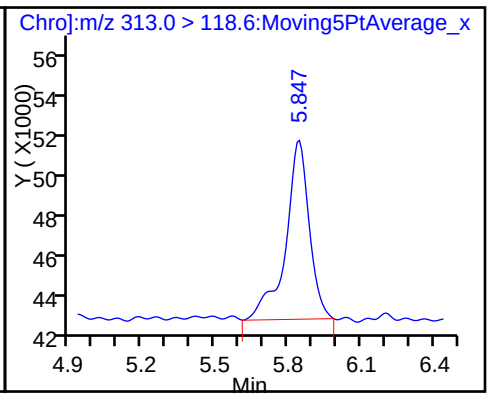
4 Perfluorobutane Sulfonate



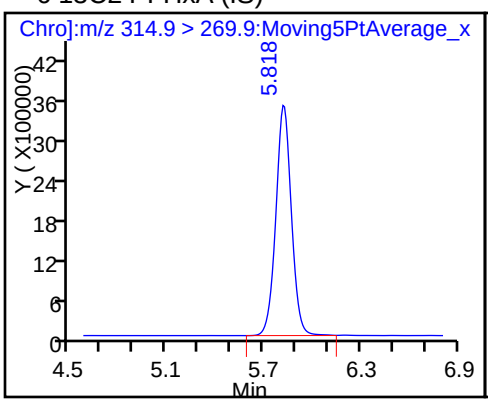
7 Perfluorohexanoic acid



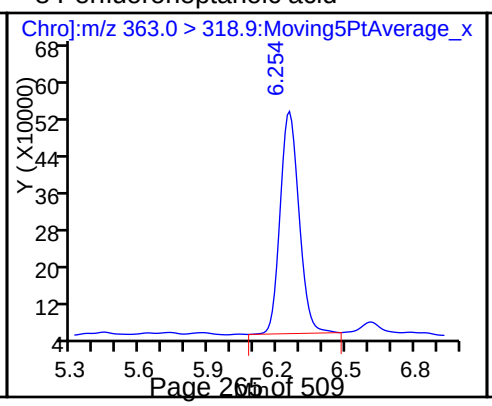
7 Perfluorohexanoic acid



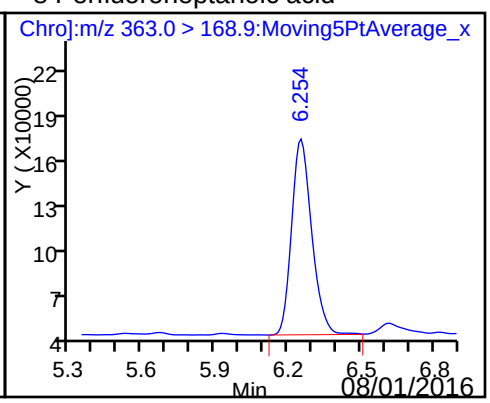
* 6 13C2 PFHxA (IS)



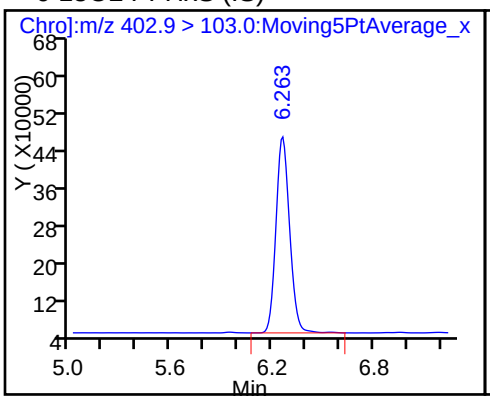
8 Perfluoroheptanoic acid



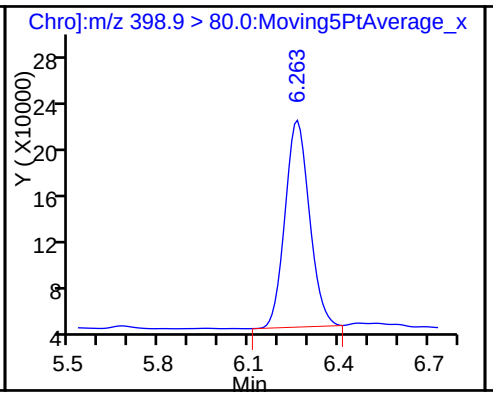
8 Perfluoroheptanoic acid



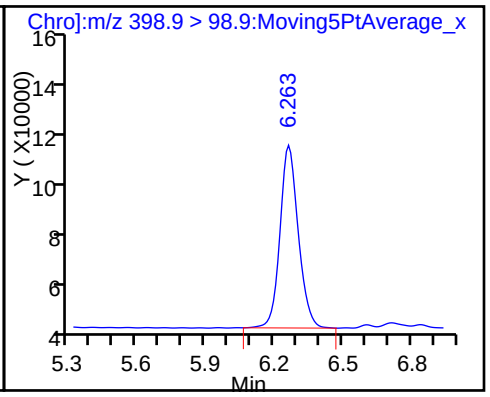
* 9 18O2 PFHxS (IS)



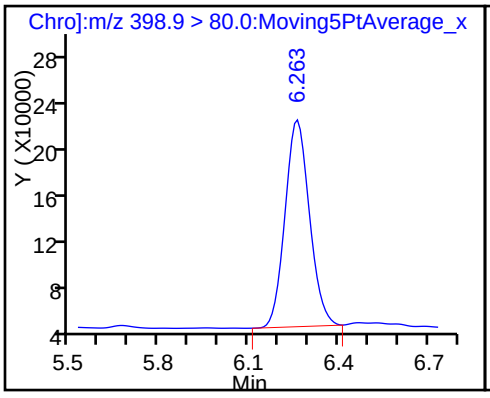
10 Perfluorohexane Sulfonate



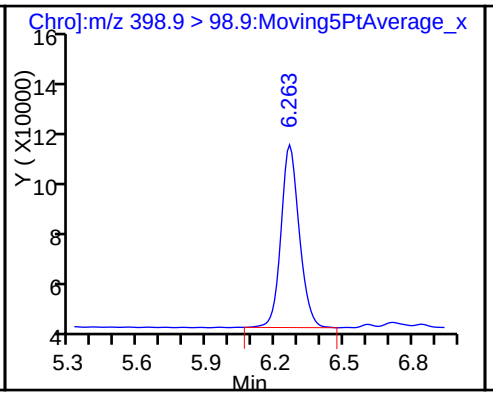
10 Perfluorohexane Sulfonate



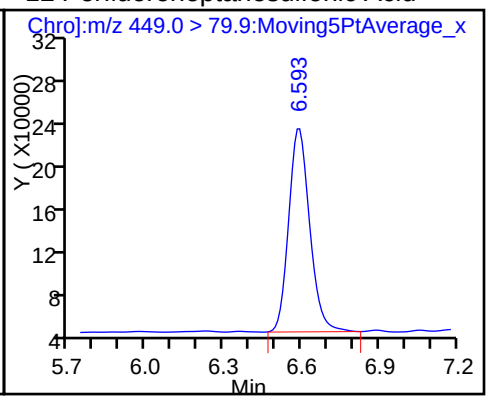
11 Perfluorohexanesulfonic acid



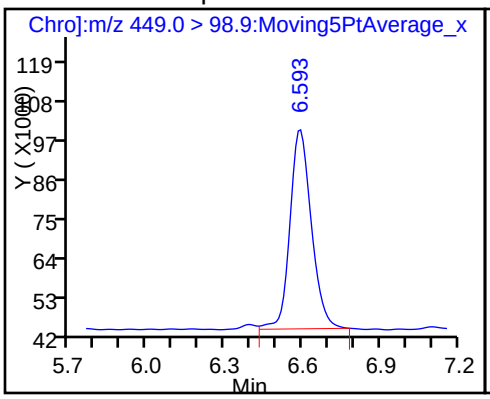
11 Perfluorohexanesulfonic acid



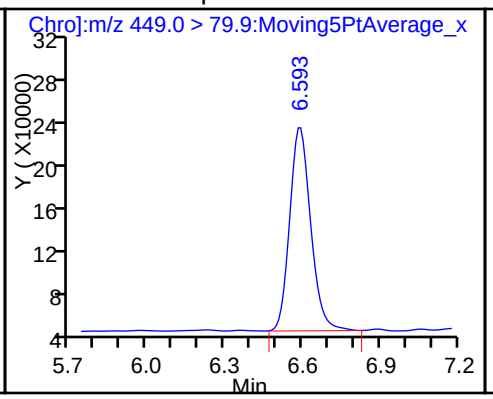
12 Perfluoroheptanesulfonic Acid



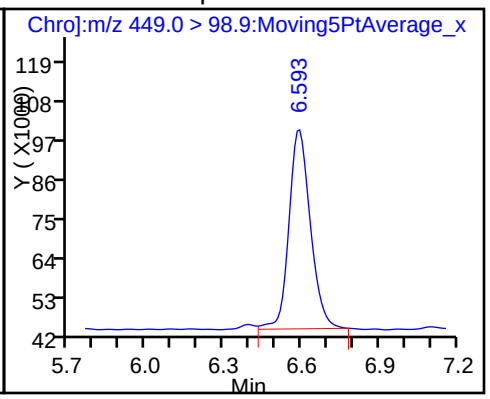
12 Perfluoroheptanesulfonic Acid



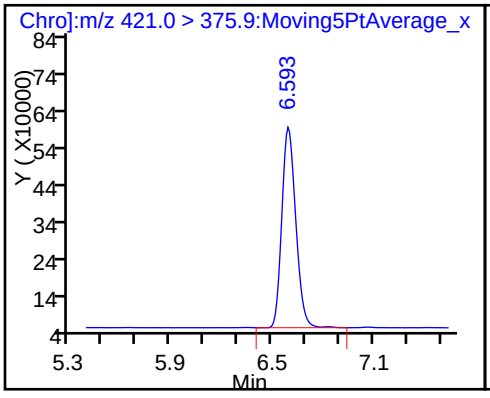
13 Perfluoroheptane Sulfonate



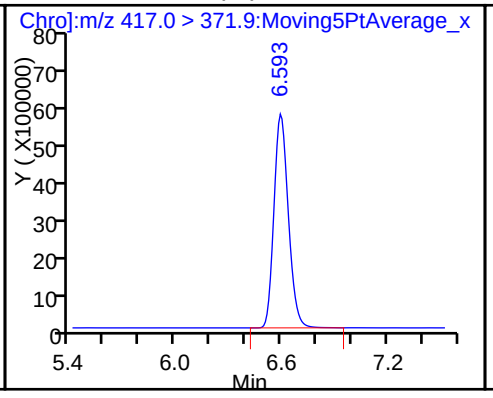
13 Perfluoroheptane Sulfonate



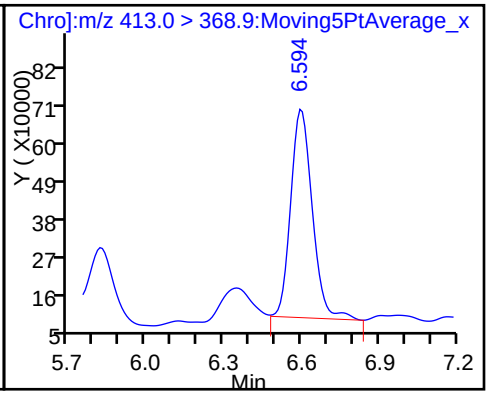
$ 14 13C8 PFOA



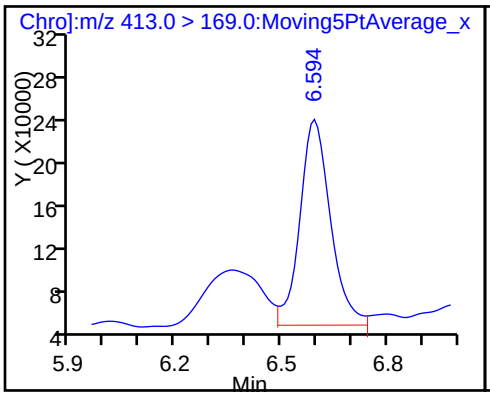
* 15 13C4 PFOA (IS)



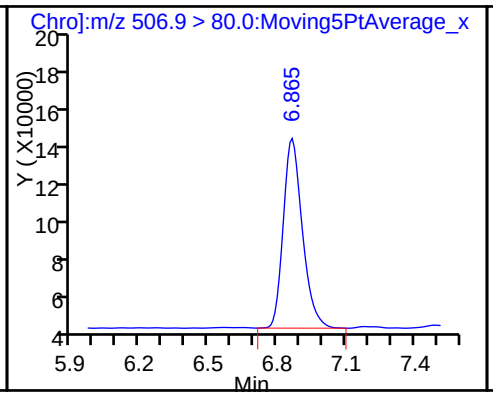
16 Perfluorooctanoic acid



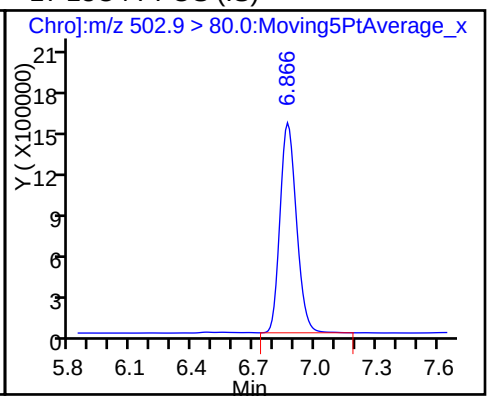
16 Perfluorooctanoic acid



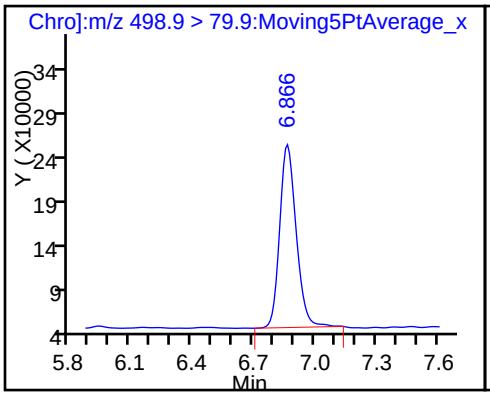
$ 18 13C8 PFOS



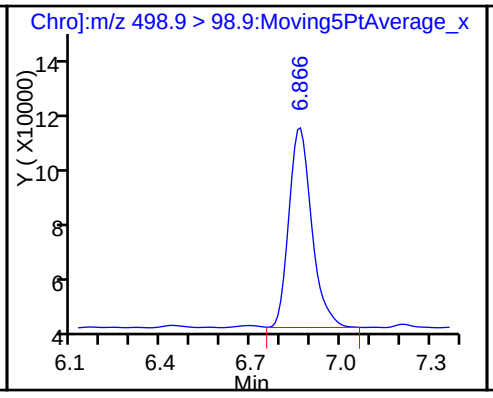
* 17 13C4 PFOS (IS)



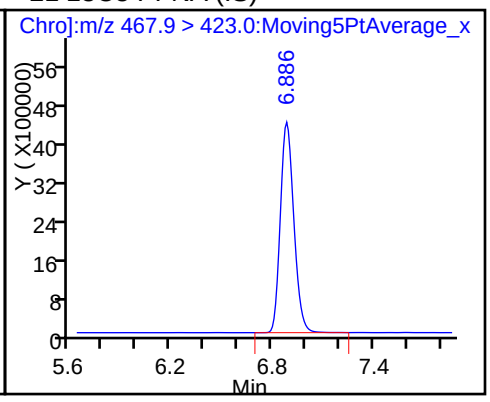
19 Perfluorooctane sulfonic acid



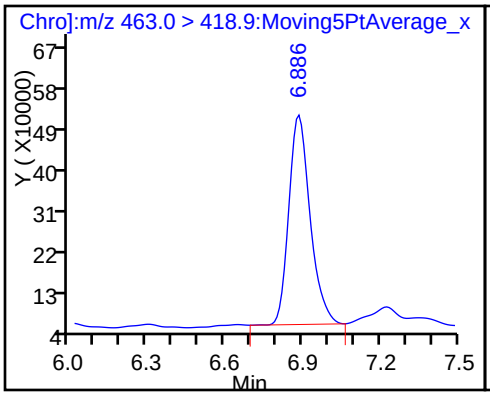
19 Perfluorooctane sulfonic acid



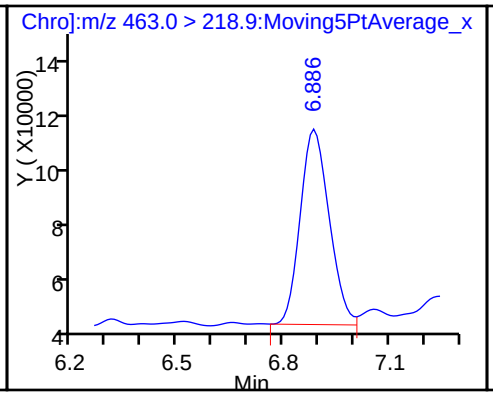
* 21 13C5 PFNA (IS)



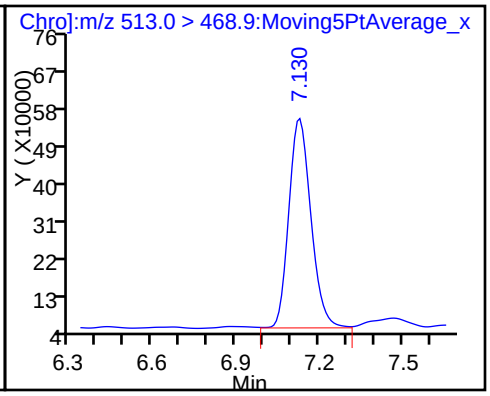
20 Perfluorononanoic acid



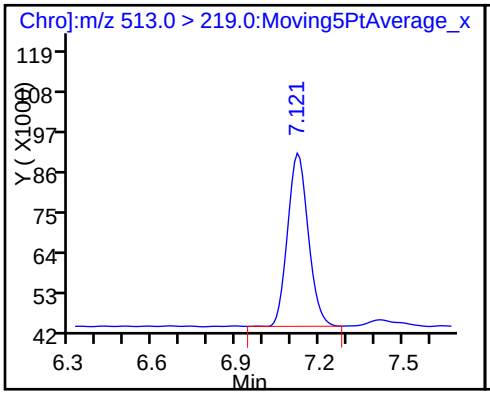
20 Perfluorononanoic acid



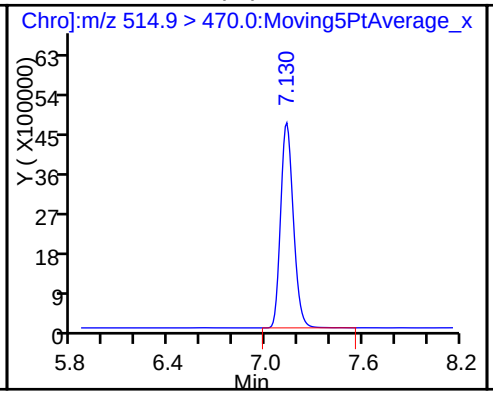
23 Perfluorodecanoic acid



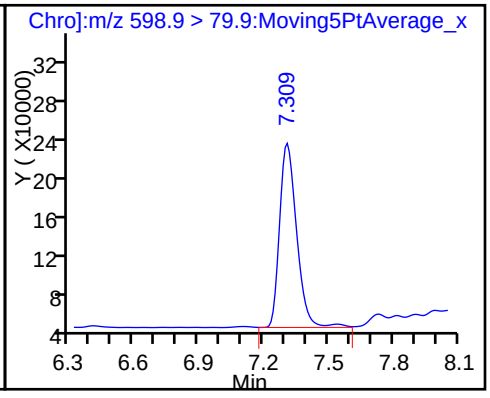
23 Perfluorodecanoic acid



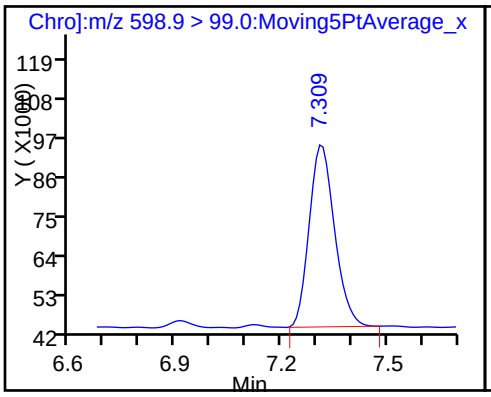
* 22 13C2 PFDA (IS)



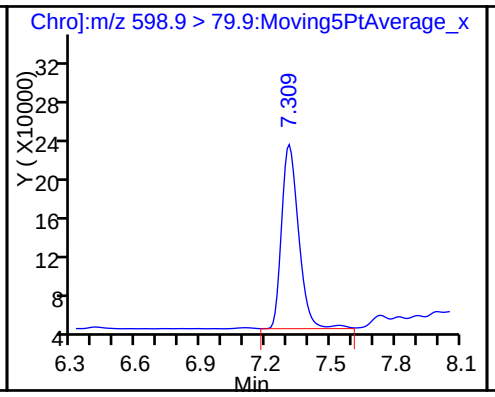
24 Perfluorodecane Sulfonic acid



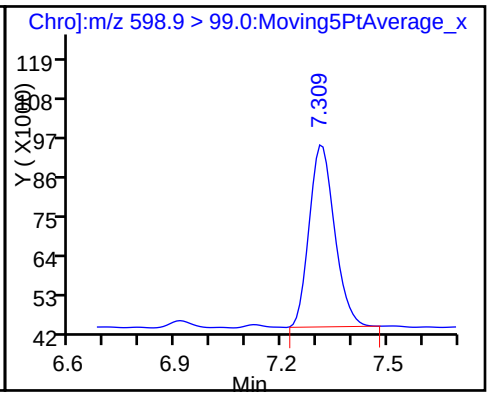
24 Perfluorodecane Sulfonic acid



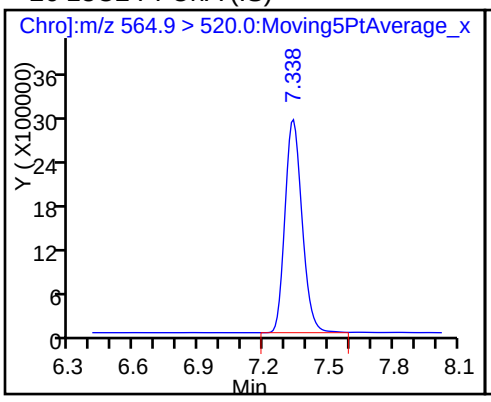
25 Perfluorodecane Sulfonate



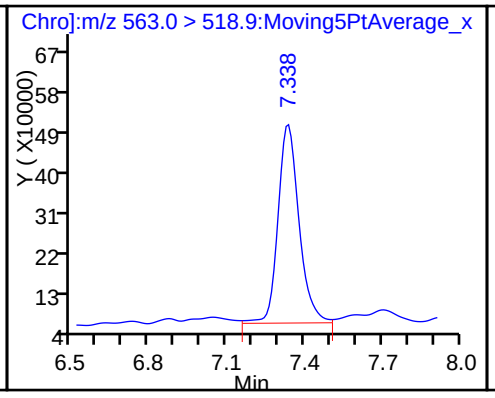
25 Perfluorodecane Sulfonate



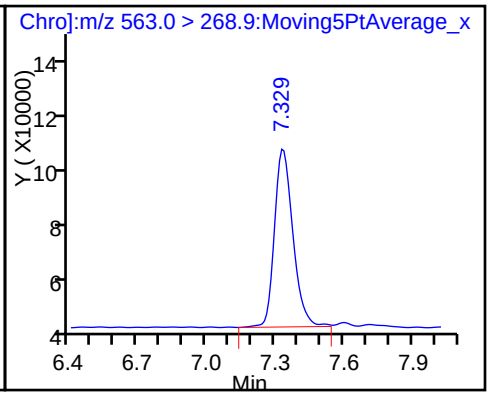
* 26 13C2 PFUnA (IS)



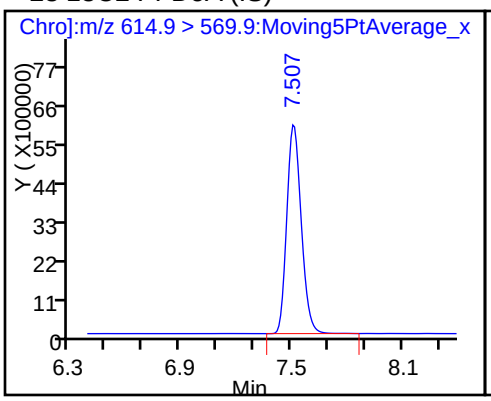
27 Perfluoroundecanoic acid



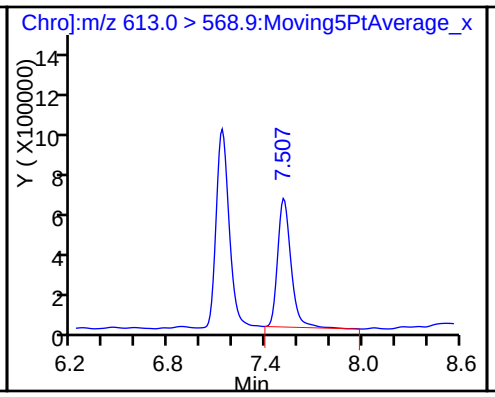
27 Perfluoroundecanoic acid



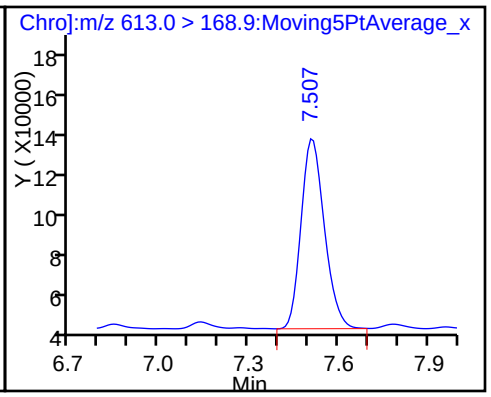
* 28 13C2 PFDoA (IS)



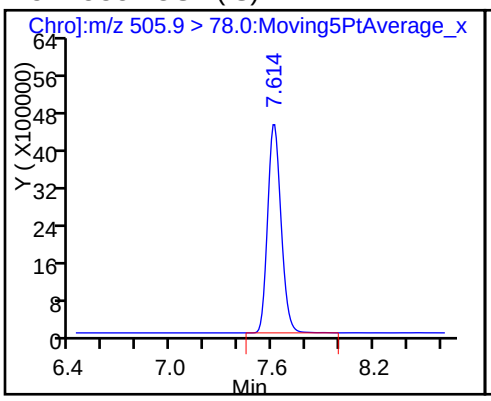
29 Perfluorododecanoic acid



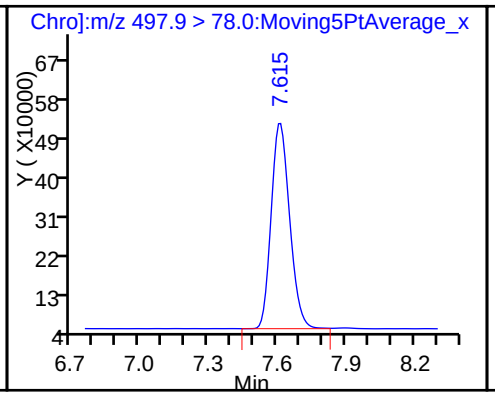
29 Perfluorododecanoic acid



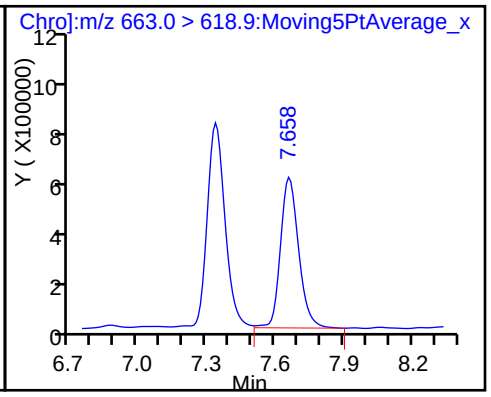
* 31 13C8 FOSA (IS)



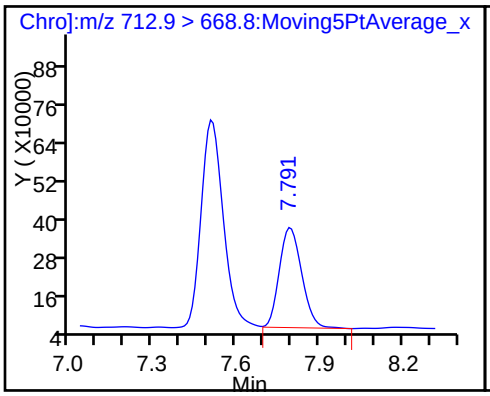
32 Perfluorooctane Sulfonamide



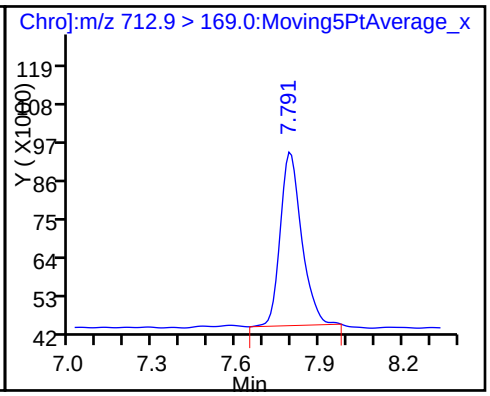
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



Manual Integration/User Assign Peak Report

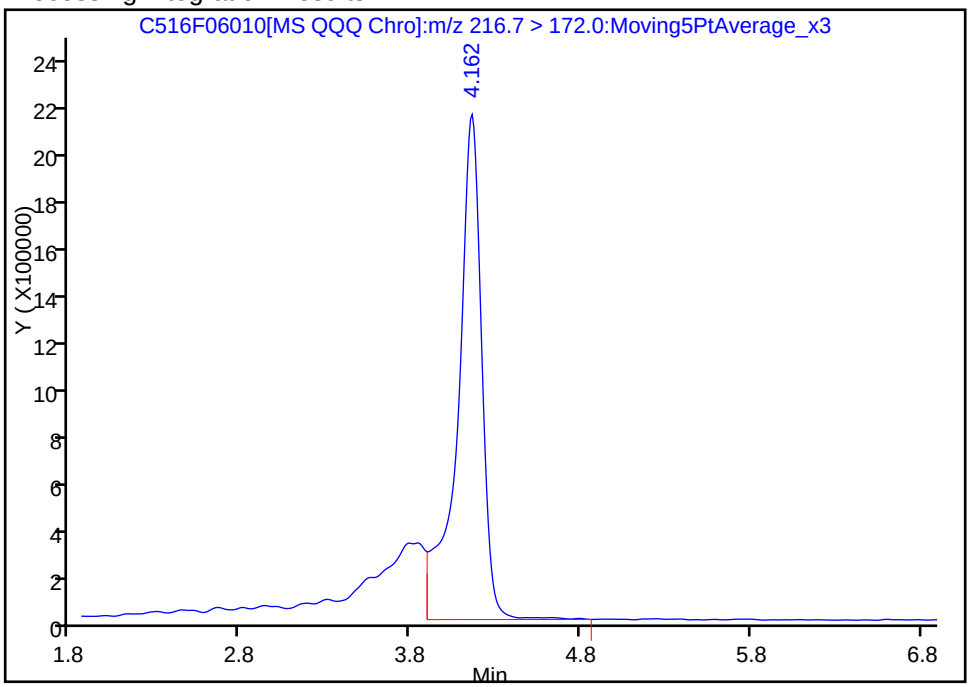
TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06010.d
Injection Date: 06-Jun-2016 15:14:36 Instrument ID: LC_LCMS5
Lims ID: STD0010
Client ID:
Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 5
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Method: 8321_PFC Limit Group: LC - PFC
Column: Detector MS QQQ

* 1 13C4 PFBA (IS), CAS: STL01003

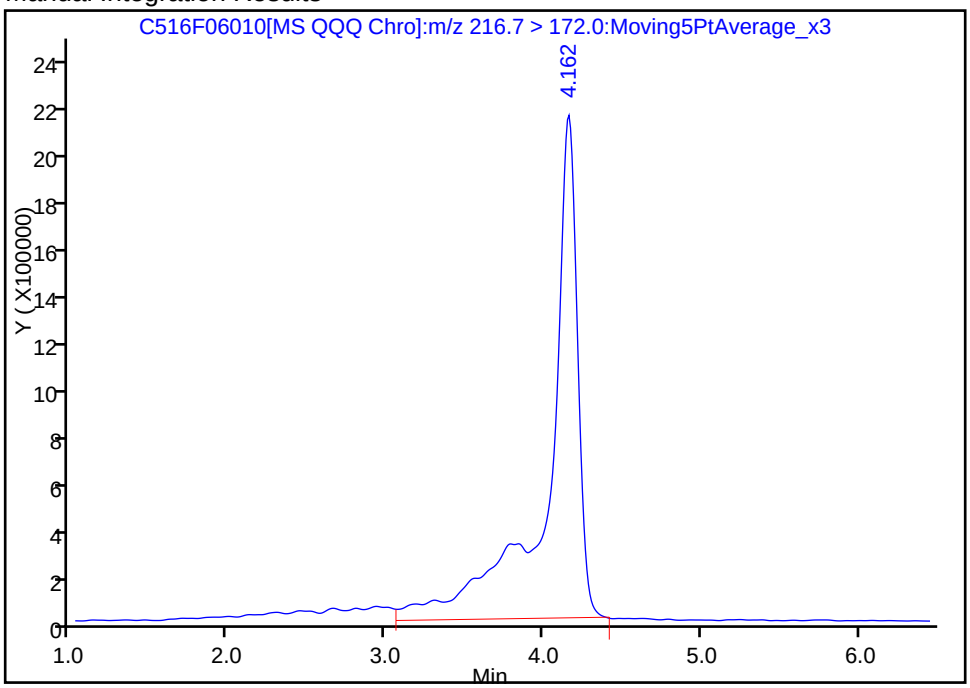
Processing Integration Results

RT: 4.16
Area: 20559374
Amount: 10.000000
Amount Units: ug/L



Manual Integration Results

RT: 4.16
Area: 27598245
Amount: 10.000000
Amount Units: ug/L



Reviewer: meyera, 07-Jun-2016 12:59:20
Audit Action: Manually Integrated
Audit Reason: Baseline

Manual Integration/User Assign Peak Report

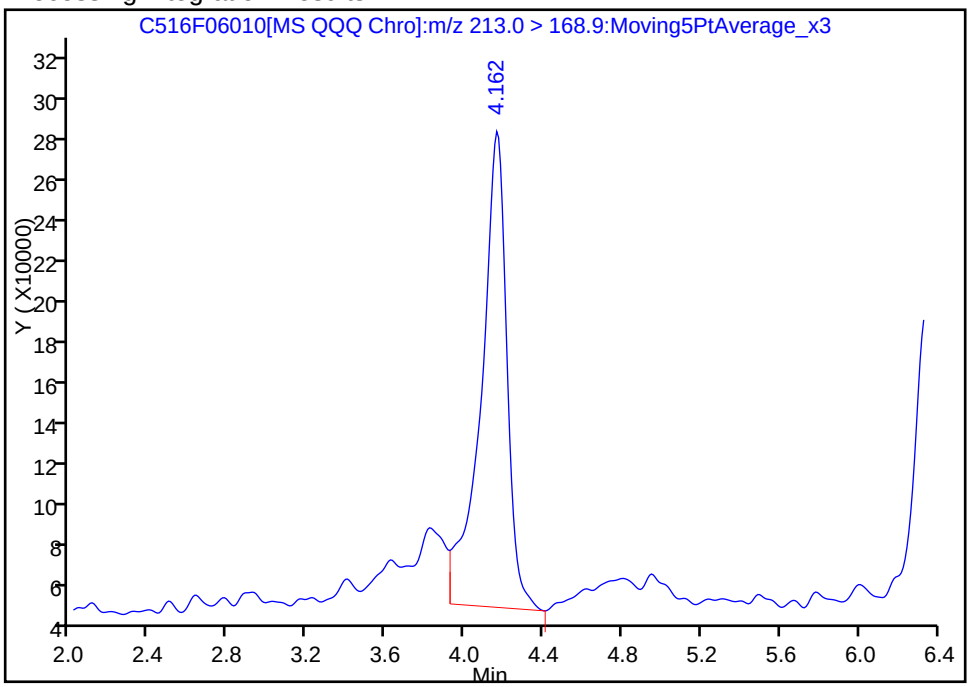
TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06010.d
Injection Date: 06-Jun-2016 15:14:36 Instrument ID: LC_LCMS5
Lims ID: STD0010
Client ID:
Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 5
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Method: 8321_PFC Limit Group: LC - PFC
Column: Detector MS QQQ

2 Perfluorobutyric acid, CAS: 375-22-4

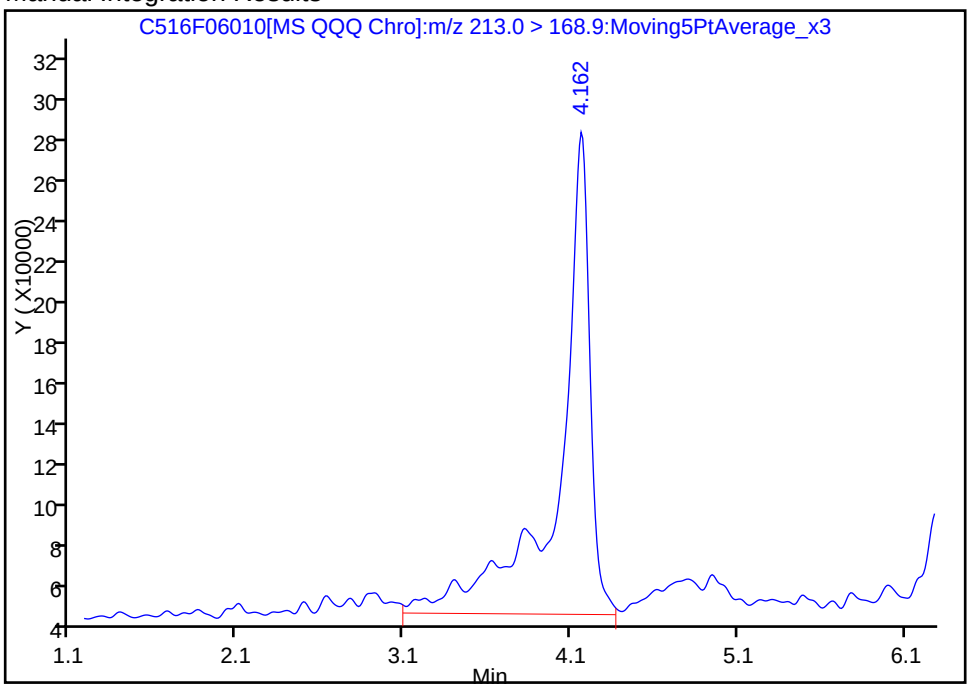
Processing Integration Results

RT: 4.16
Area: 2073405
Amount: 0.770220
Amount Units: ug/L



Manual Integration Results

RT: 4.16
Area: 3038727
Amount: 1.029538
Amount Units: ug/L



Reviewer: meyera, 07-Jun-2016 12:59:20
Audit Action: Manually Integrated
Audit Reason: Baseline

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06011.d
Lims ID: STD0020
Client ID:
Sample Type: ICISAV Calib Level: 4
Inject. Date: 06-Jun-2016 15:26:53 ALS Bottle#: 0 Worklist Smp#: 6
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: STD 0020, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 07-Jun-2016 14:08:54 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK003

First Level Reviewer: meyera Date: 07-Jun-2016 12:56:38

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									M
216.7 > 172.0	4.162	4.162	0.0		26088805	10.0			M
2 Perfluorobutyric acid									M
213.0 > 168.9	4.162	4.162	0.0	1.000	5302668	1.90			M
3 Perfluoropentanoic acid									
263.0 > 218.9	5.232	5.232	0.0	0.899	5174660	1.90			
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.364	5.364	0.0	0.858	2150148	1.59			
298.9 > 98.9	5.355	5.364	-0.009	0.856	668844		3.21(2.57-2.57)		
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.364	5.364	0.0	0.858	2150148	1.59			
298.9 > 98.9	5.355	5.364	-0.009	0.856	668844		3.21(1.80-3.35)		
7 Perfluorohexanoic acid									
313.0 > 268.9	5.819	5.819	0.0	1.000	4642778	2.13			
313.0 > 118.6	5.828	5.819	0.009	1.002	128162		36.23(34.05-63.23)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.818	5.818	0.0		22852723	10.0			
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.244	6.244	0.0	0.947	5744336	1.96			
363.0 > 168.9	6.244	6.244	0.0	0.947	1519317		3.78(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.253	6.253	0.0		2458667	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.253	6.253	0.0	1.000	2005825	1.93			R
398.9 > 98.9	6.253	6.253	0.0	1.000	598069		3.35(1.30-2.41)		
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.253	6.253	0.0	1.000	2005825	1.93			
398.9 > 98.9	6.253	6.253	0.0	1.000	598069		3.35(1.85-1.85)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.583	6.583	0.0	0.959	2150073	1.87			
449.0 > 98.9	6.583	6.583	0.0	0.959	294863		7.29(0.00-0.00)		
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.583	6.583	0.0	0.959	2150073	1.87			
449.0 > 98.9	6.583	6.583	0.0	0.959	294863		7.29(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.593	6.593	0.0	1.000	5869974	2.15			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.593	6.593	0.0		33184339	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.594	6.594	0.0	1.000	6983614	1.96			
413.0 > 169.0	6.594	6.594	0.0	1.000	2269227		3.08(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.865	6.865	0.0	1.000	1266475	2.15			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.866	6.866	0.0		9090094	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.866	6.866	0.0	1.000	2158847	1.88			R
498.9 > 98.9	6.866	6.866	0.0	1.000	810717		2.66(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.886	6.886	0.0		25217378	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.886	6.886	0.0	1.000	5817495	2.02			
463.0 > 218.9	6.886	6.886	0.0	1.000	799914		7.27(5.59-10.38)		
23 Perfluorodecanoic acid									
513.0 > 468.9	7.130	7.130	0.0	1.000	5187930	1.96			
513.0 > 219.0	7.130	7.130	0.0	1.000	484901		10.70(10.49-19.48)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.130	7.130	0.0		25918394	10.0			
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.318	7.318	0.0	1.066	2240490	1.87			
598.9 > 99.0	7.318	7.318	0.0	1.066	751846		2.98(2.84-2.84)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.318	7.318	0.0	1.066	2240490	1.87			
598.9 > 99.0	7.318	7.318	0.0	1.066	751846		2.98(1.99-3.69)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.347	7.347	0.0		17106034	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.347	7.347	0.0	1.000	4772902	1.93			R
563.0 > 268.9	7.338	7.347	-0.009	0.999	637651		7.49(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.517	7.517	0.0		33224124	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.517	7.517	0.0	1.000	6822134	1.95			
613.0 > 168.9	7.517	7.517	0.0	1.000	1007833		6.77(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.614	7.614	0.0		25464298	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.615	7.615	0.0	1.000	5393596	1.94			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.668	7.668	0.0	1.020	6520781	2.05			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.800	7.800	0.0	1.038	3642443	1.85			
712.9 > 169.0	7.800	7.800	0.0	1.038	615826		5.91(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Review Flags

M - Manually Integrated

Reagents:

PFC_CAL_stock_00033	Amount Added: 100.00	Units: uL
PFC-IS_00021	Amount Added: 20.00	Units: uL

Report Date: 07-Jun-2016 14:08:54 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06011.d

Injection Date: 06-Jun-2016 15:26:53 Instrument ID: LC_LCMS5

Lims ID: STD0020

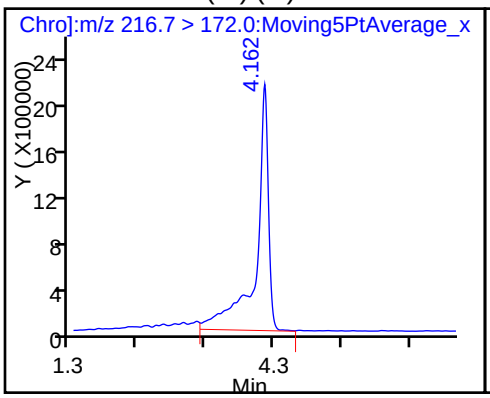
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 6

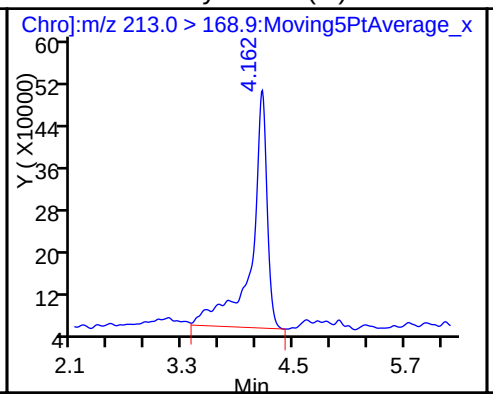
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

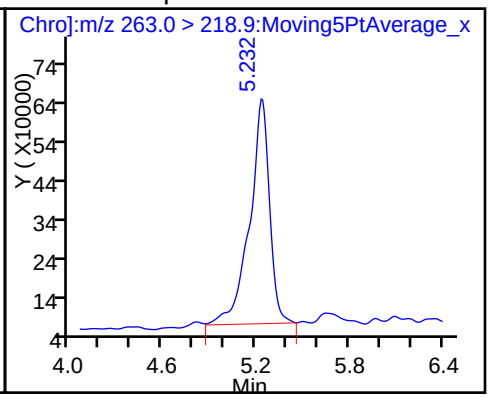
* 1 13C4 PFBA (IS) (M)



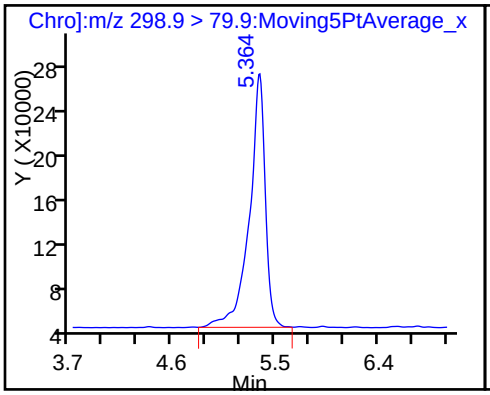
2 Perfluorobutyric acid (M)



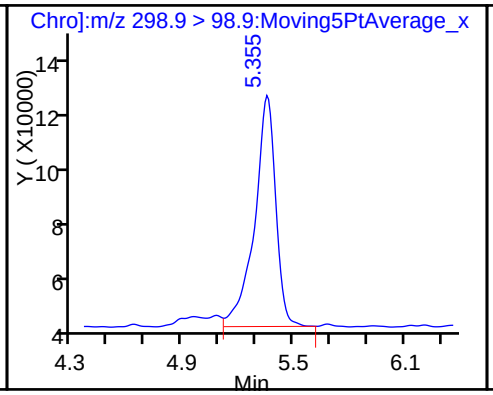
3 Perfluoropentanoic acid



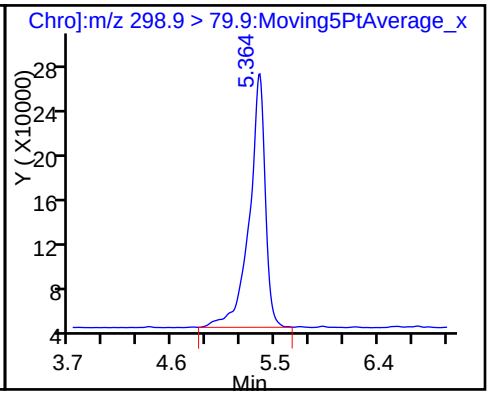
5 Perfluorobutanesulfonic acid



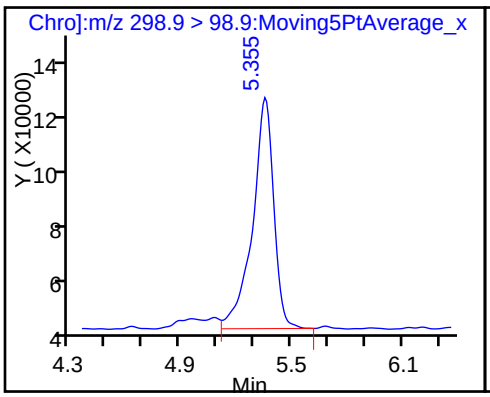
5 Perfluorobutanesulfonic acid



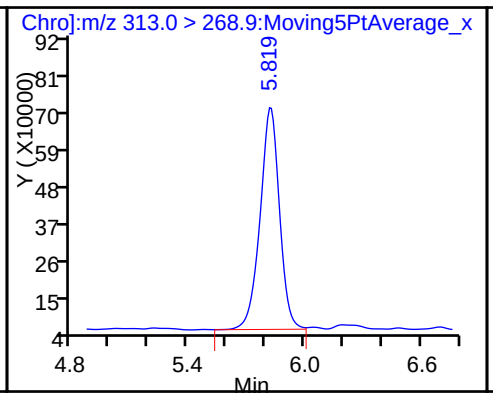
4 Perfluorobutane Sulfonate



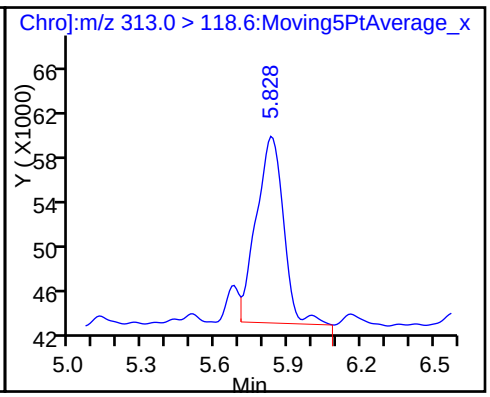
4 Perfluorobutane Sulfonate



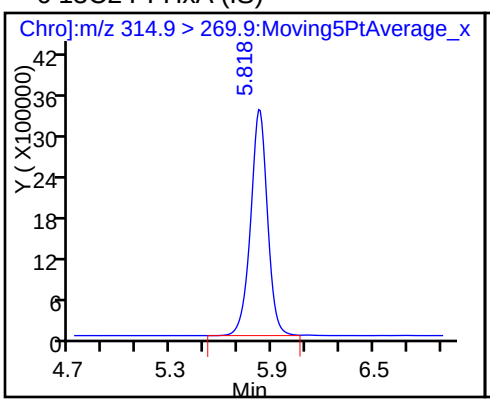
7 Perfluorohexanoic acid



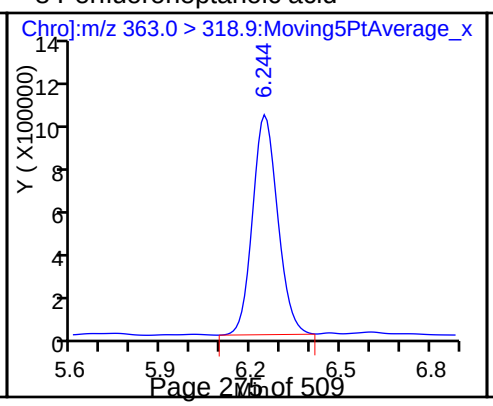
7 Perfluorohexanoic acid



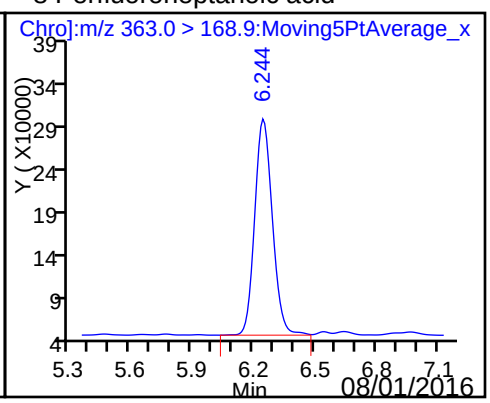
* 6 13C2 PFHxA (IS)



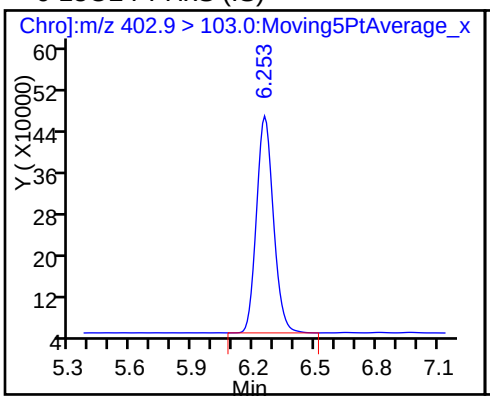
8 Perfluoroheptanoic acid



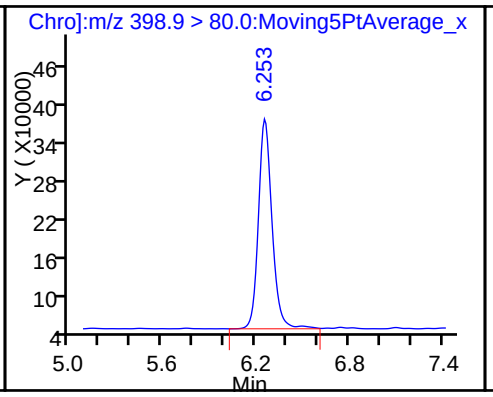
8 Perfluoroheptanoic acid



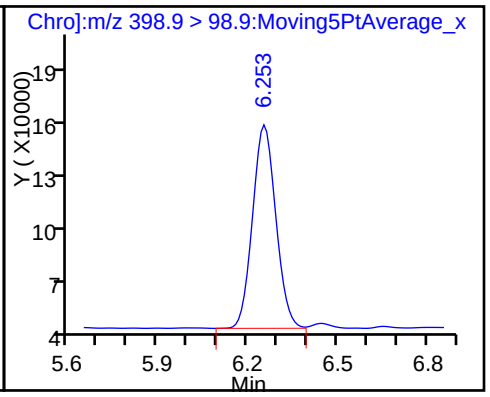
* 9 18O2 PFHxS (IS)



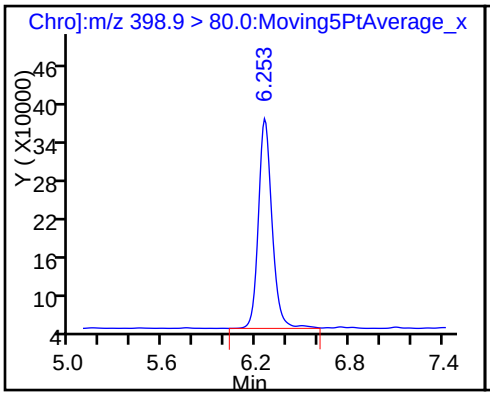
10 Perfluorohexane Sulfonate



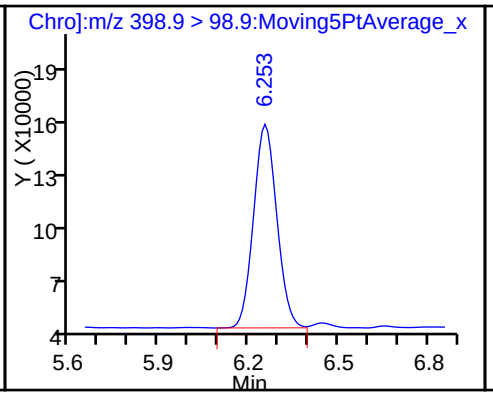
10 Perfluorohexane Sulfonate



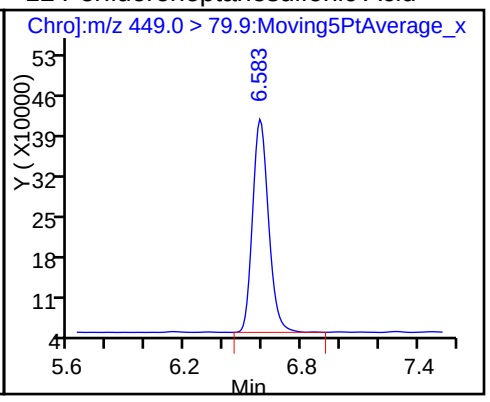
11 Perfluorohexanesulfonic acid



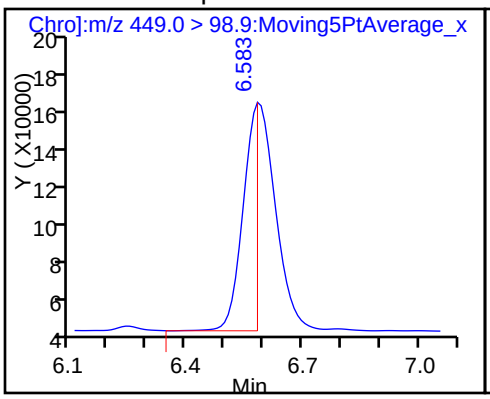
11 Perfluorohexanesulfonic acid



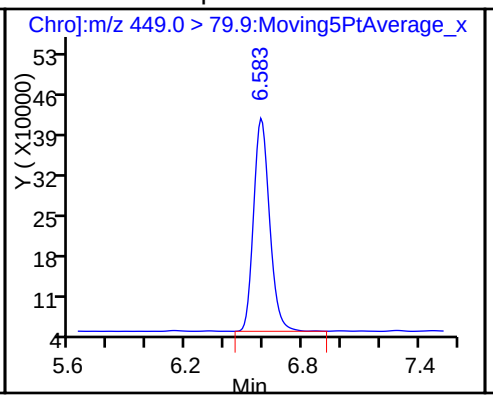
12 Perfluoroheptanesulfonic Acid



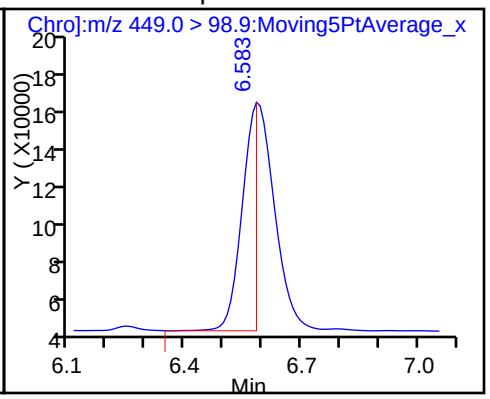
12 Perfluoroheptanesulfonic Acid



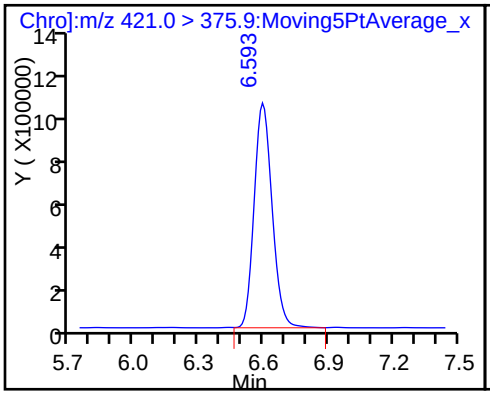
13 Perfluoroheptane Sulfonate



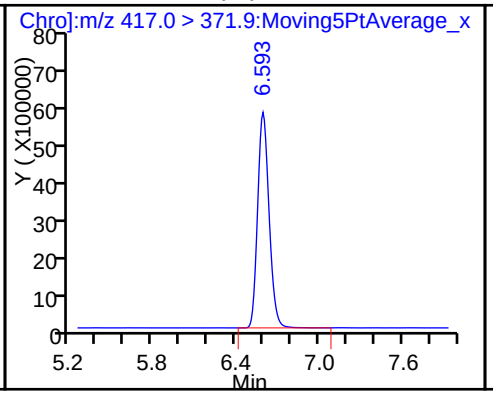
13 Perfluoroheptane Sulfonate



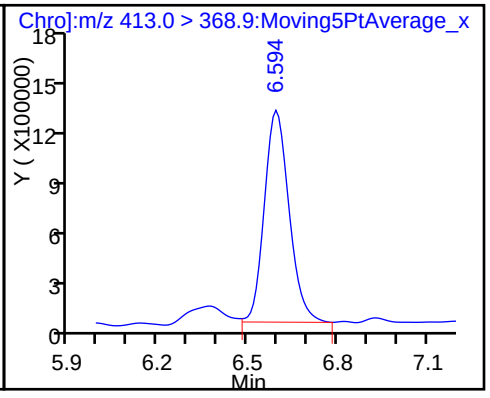
$ 14 13C8 PFOA



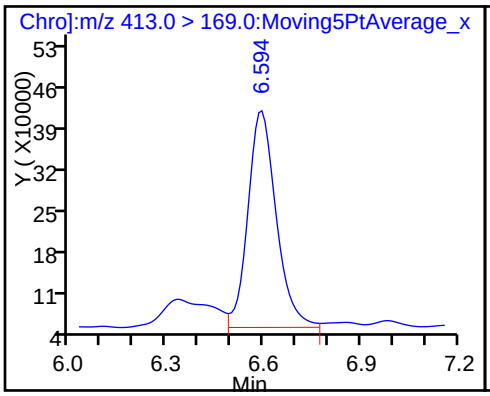
* 15 13C4 PFOA (IS)



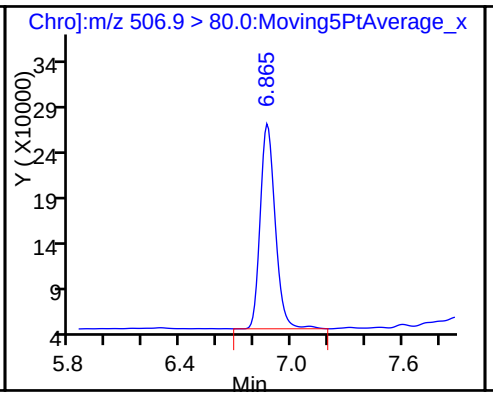
16 Perfluorooctanoic acid



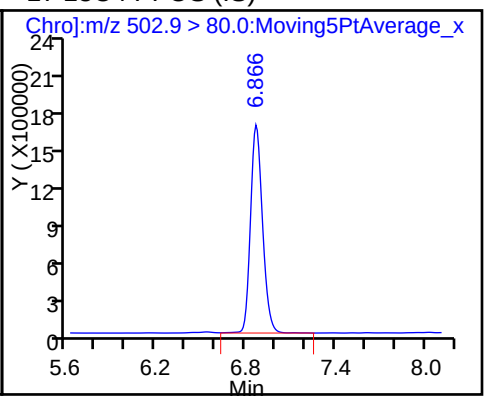
16 Perfluorooctanoic acid



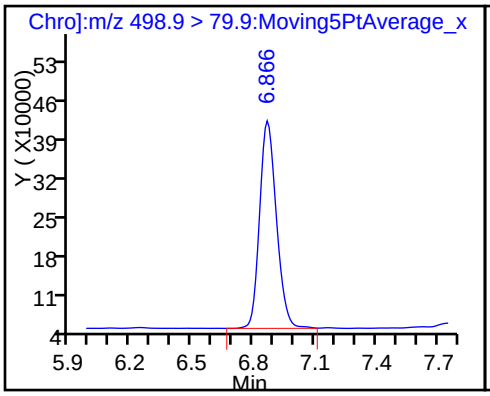
$ 18 13C8 PFOS



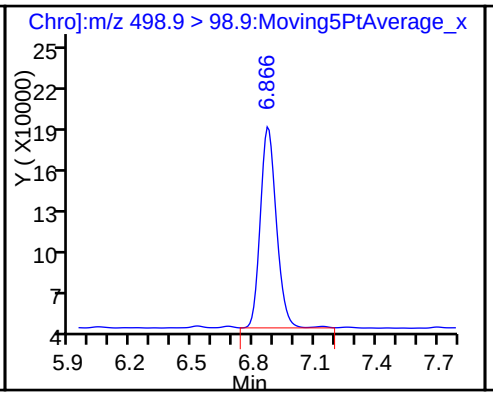
* 17 13C4 PFOS (IS)



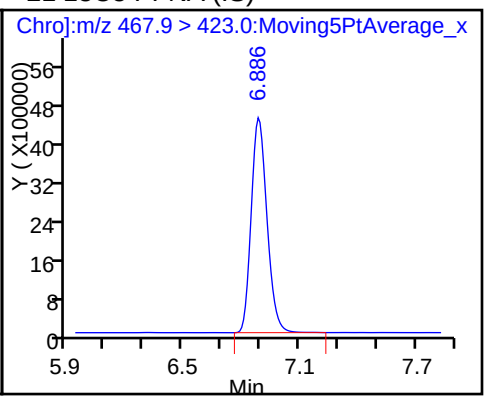
19 Perfluorooctane sulfonic acid



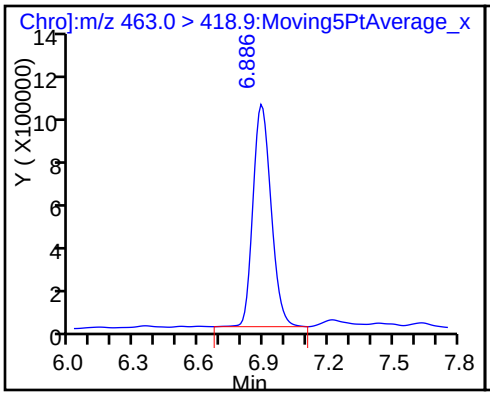
19 Perfluorooctane sulfonic acid



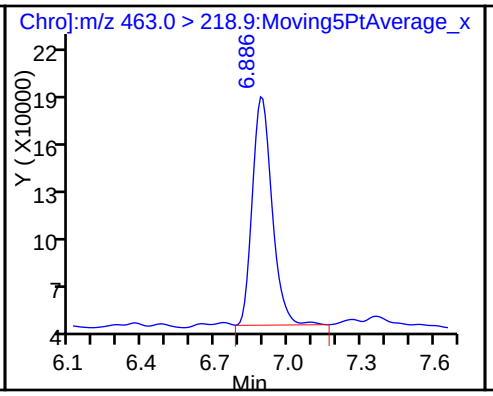
* 21 13C5 PFNA (IS)



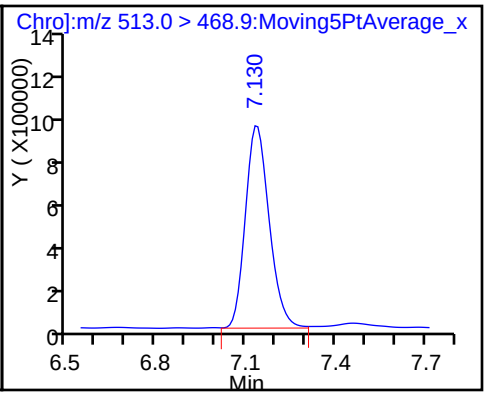
20 Perfluorononanoic acid



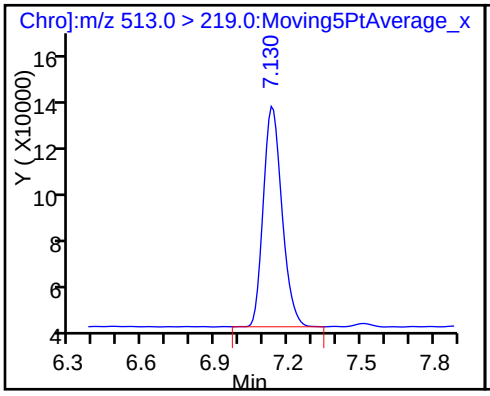
20 Perfluorononanoic acid



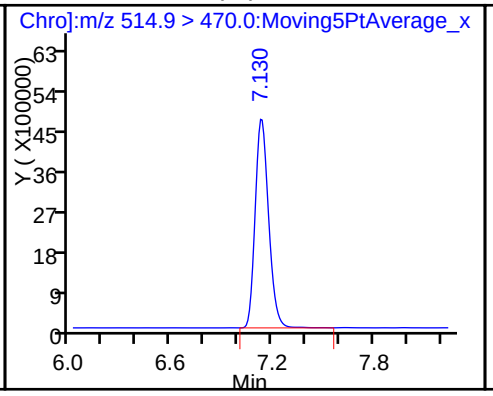
23 Perfluorodecanoic acid



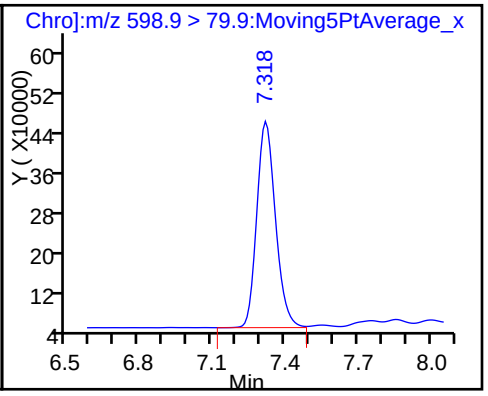
23 Perfluorodecanoic acid



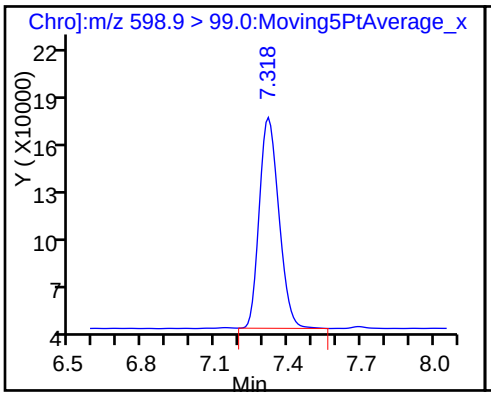
* 22 13C2 PFDA (IS)



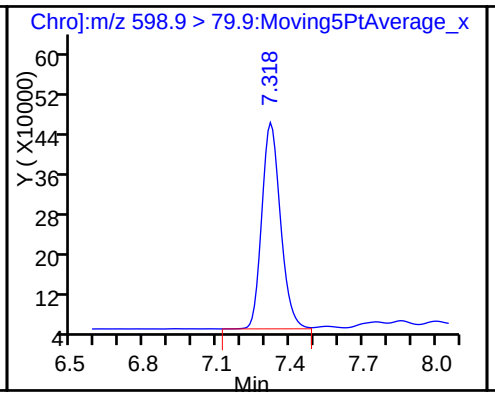
24 Perfluorodecane Sulfonic acid



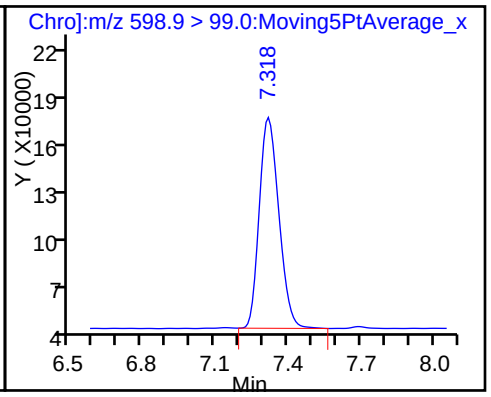
24 Perfluorodecane Sulfonic acid



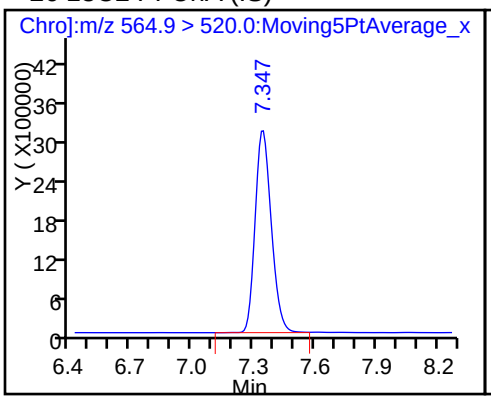
25 Perfluorodecane Sulfonate



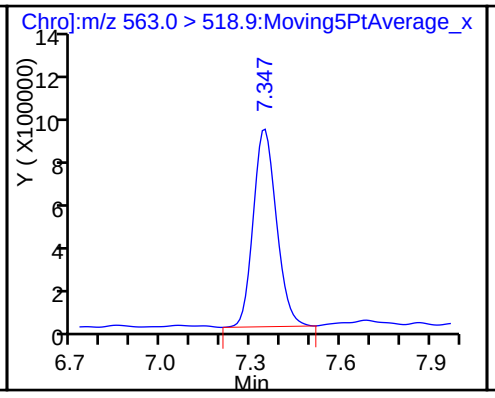
25 Perfluorodecane Sulfonate



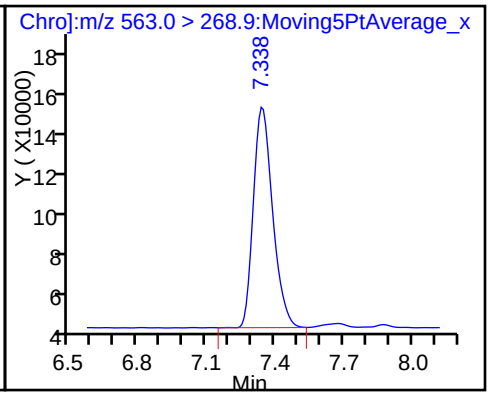
* 26 13C2 PFUnA (IS)



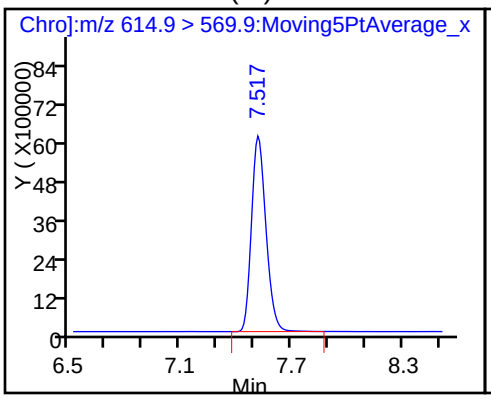
27 Perfluoroundecanoic acid



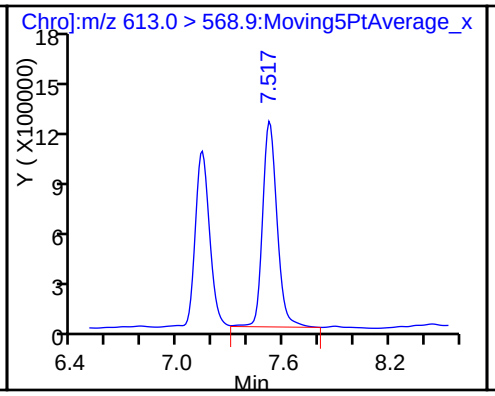
27 Perfluoroundecanoic acid



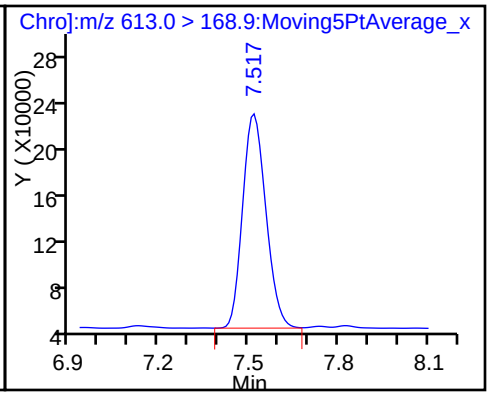
* 28 13C2 PFDoA (IS)



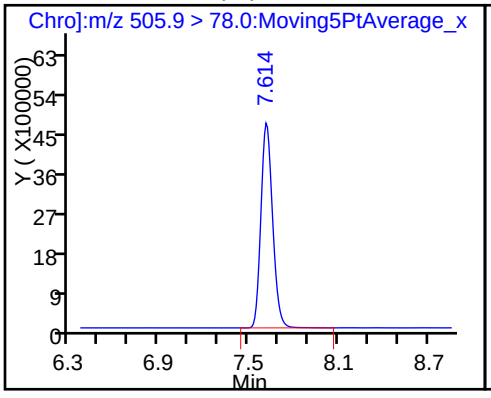
29 Perfluorododecanoic acid



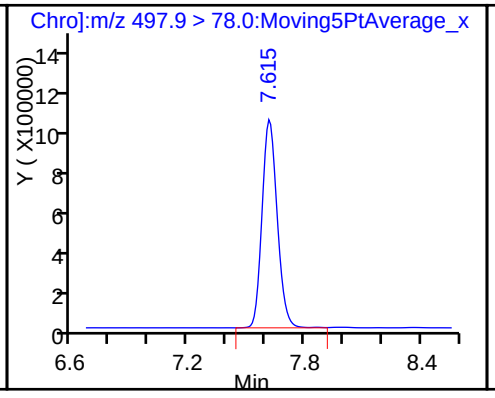
29 Perfluorododecanoic acid



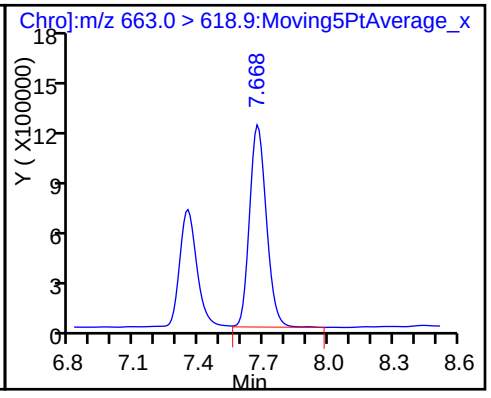
* 31 13C8 FOSA (IS)



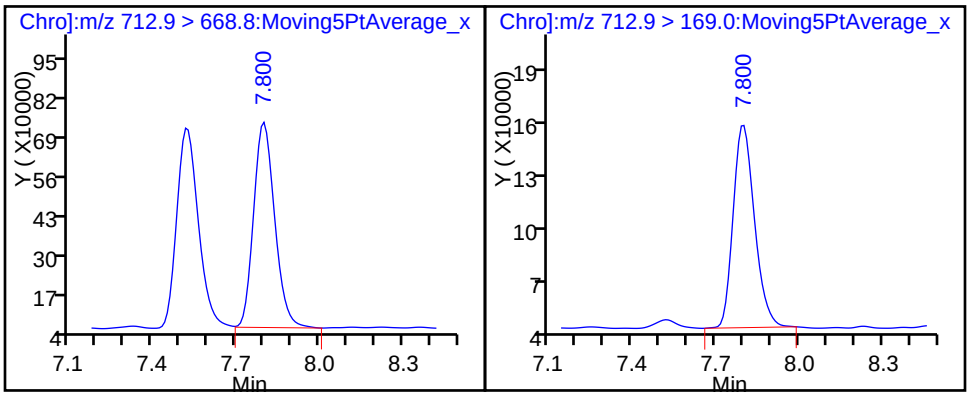
32 Perfluorooctane Sulfonamide



30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid

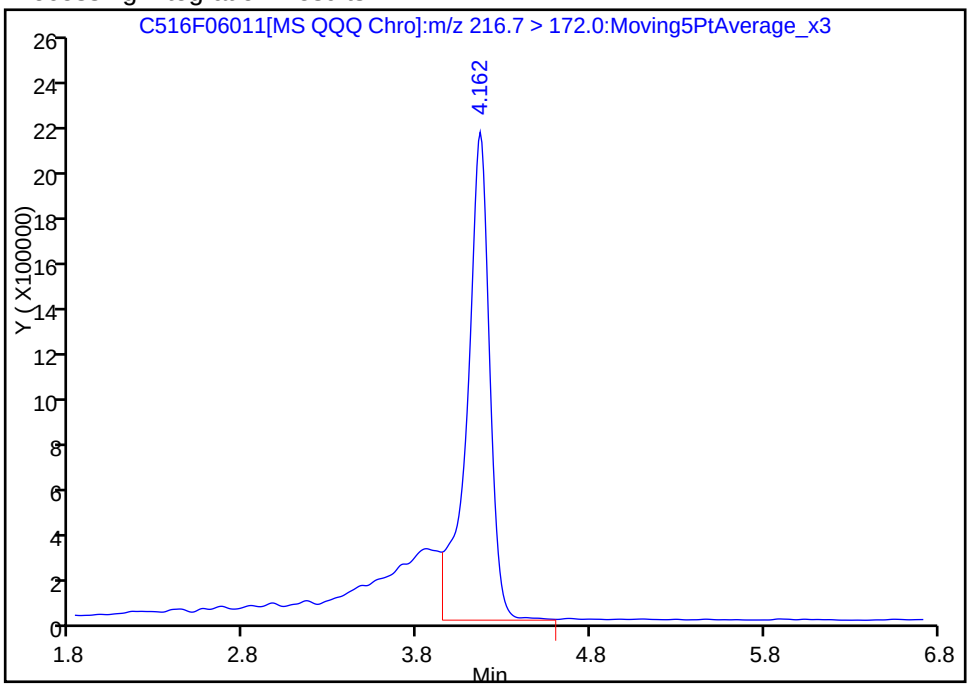
TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06011.d
Injection Date: 06-Jun-2016 15:26:53 Instrument ID: LC_LCMS5
Lims ID: STD0020
Client ID:
Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 6
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Method: 8321_PFC Limit Group: LC - PFC
Column: Detector MS QQQ

* 1 13C4 PFBA (IS), CAS: STL01003

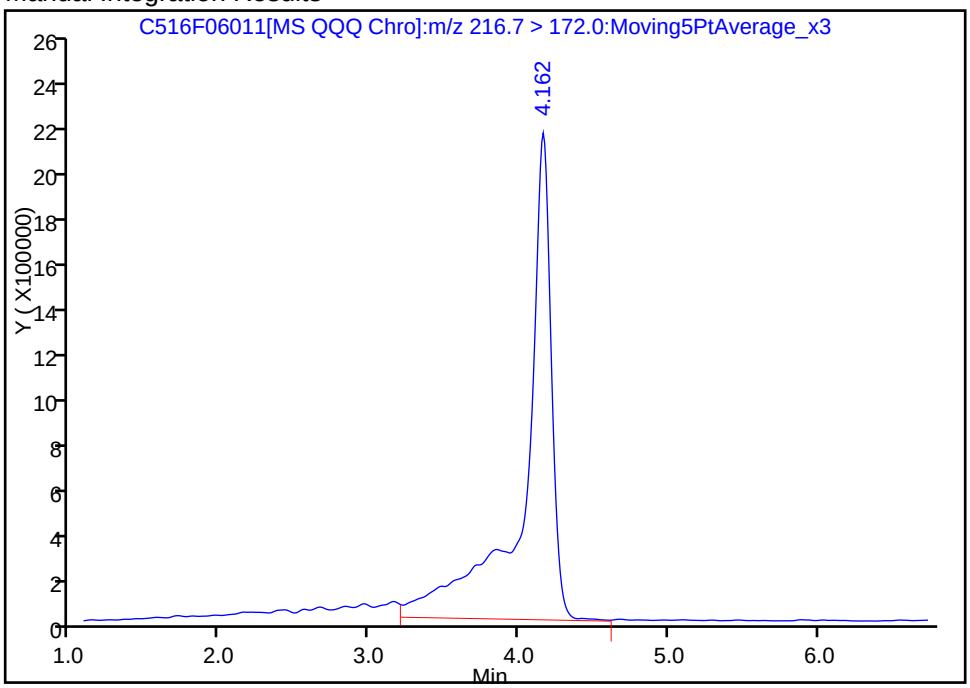
Processing Integration Results

RT: 4.16
Area: 18712233
Amount: 10.000000
Amount Units: ug/L



Manual Integration Results

RT: 4.16
Area: 26088805
Amount: 10.000000
Amount Units: ug/L



Reviewer: meyera, 07-Jun-2016 12:56:38
Audit Action: Manually Integrated
Audit Reason: Baseline

Manual Integration/User Assign Peak Report

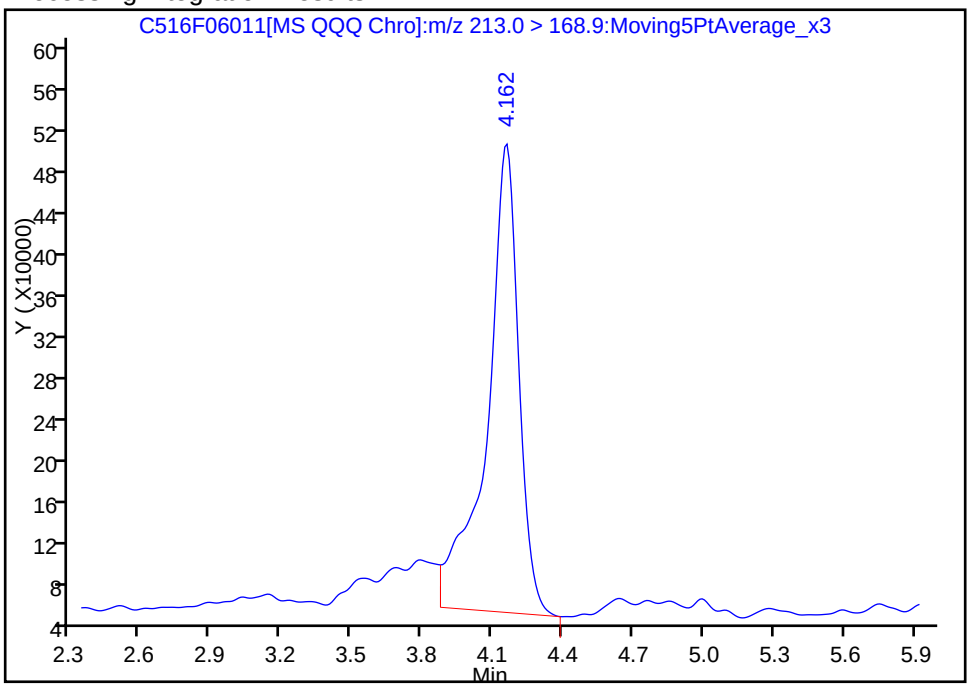
TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06011.d
Injection Date: 06-Jun-2016 15:26:53 Instrument ID: LC_LCMS5
Lims ID: STD0020
Client ID:
Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 6
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Method: 8321_PFC Limit Group: LC - PFC
Column: Detector MS QQQ

2 Perfluorobutyric acid, CAS: 375-22-4

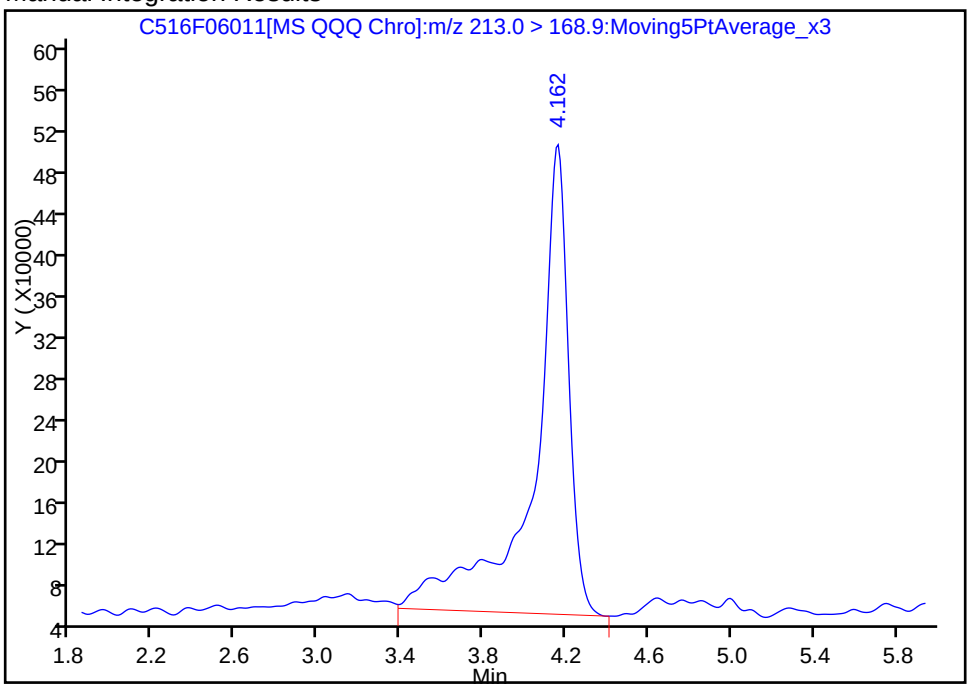
Processing Integration Results

RT: 4.16
Area: 4262347
Amount: 0.917918
Amount Units: ug/L



Manual Integration Results

RT: 4.16
Area: 5302668
Amount: 1.897623
Amount Units: ug/L



Reviewer: meyera, 07-Jun-2016 12:56:38
Audit Action: Manually Integrated
Audit Reason: Baseline

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06012.d
Lims ID: STD0050
Client ID:
Sample Type: IC Calib Level: 5
Inject. Date: 06-Jun-2016 15:39:12 ALS Bottle#: 0 Worklist Smp#: 7
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: STD 0050, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 07-Jun-2016 14:09:00 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK003

First Level Reviewer: meyera Date: 07-Jun-2016 12:57:14

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.143	4.162	-0.019		30058395	10.0			
2 Perfluorobutyric acid									M
213.0 > 168.9	4.153	4.162	-0.009	1.002	15646483	4.85			M
3 Perfluoropentanoic acid									
263.0 > 218.9	5.232	5.232	0.0	0.898	14121680	5.12			
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.355	5.364	-0.009	0.855	5710734	4.49			
298.9 > 98.9	5.355	5.364	-0.009	0.855	1741559		3.28(2.57-2.57)		
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.355	5.364	-0.009	0.855	5710734	4.49			
298.9 > 98.9	5.355	5.364	-0.009	0.855	1741559		3.28(1.80-3.35)		
7 Perfluorohexanoic acid									
313.0 > 268.9	5.828	5.819	0.009	1.000	10659437	4.80			
313.0 > 118.6	5.838	5.819	0.019	1.002	355910		29.95(34.05-63.23)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.828	5.818	0.010		23405456	10.0			
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.263	6.244	0.019	0.947	14292973	5.04			
363.0 > 168.9	6.263	6.244	0.019	0.947	3943282		3.62(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.263	6.253	0.010		2306359	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.272	6.253	0.019	1.002	4705477	4.95			R
398.9 > 98.9	6.272	6.253	0.019	1.002	1732235		2.72(1.30-2.41)		
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.272	6.253	0.019	1.002	4705477	4.95			
398.9 > 98.9	6.272	6.253	0.019	1.002	1732235		2.72(1.85-1.85)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.602	6.583	0.019	0.959	5403580	4.77			
449.0 > 98.9	6.602	6.583	0.019	0.959	1549855		3.49(0.00-0.00)		
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.602	6.583	0.019	0.959	5403580	4.77			
449.0 > 98.9	6.602	6.583	0.019	0.959	1549855		3.49(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.612	6.593	0.019	1.000	14613722	5.54			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.612	6.593	0.019		32493562	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.613	6.594	0.019	1.000	17252348	5.06			
413.0 > 169.0	6.613	6.594	0.019	1.000	5369504		3.21(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.884	6.865	0.019	1.000	2952684	5.15			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.885	6.866	0.019		8937624	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.885	6.866	0.019	1.000	5678428	5.15			R
498.9 > 98.9	6.885	6.866	0.019	1.000	2095239		2.71(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.905	6.886	0.019		23993318	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.905	6.886	0.019	1.000	14058059	5.20			
463.0 > 218.9	6.905	6.886	0.019	1.000	1958954		7.18(5.59-10.38)		
23 Perfluorodecanoic acid									
513.0 > 468.9	7.149	7.130	0.019	1.000	13455719	5.26			
513.0 > 219.0	7.149	7.130	0.019	1.000	1185162		11.35(10.49-19.48)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.149	7.130	0.019		25302155	10.0			
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.328	7.318	0.010	1.064	5632521	4.85			
598.9 > 99.0	7.328	7.318	0.010	1.064	1578945		3.57(2.84-2.84)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.328	7.318	0.010	1.064	5632521	4.85			
598.9 > 99.0	7.328	7.318	0.010	1.064	1578945		3.57(1.99-3.69)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.357	7.347	0.010		16303477	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.357	7.347	0.010	1.000	11414147	4.91			R
563.0 > 268.9	7.357	7.347	0.010	1.000	1382008		8.26(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.526	7.517	0.009		34205513	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.526	7.517	0.009	1.000	17657166	5.00			
613.0 > 168.9	7.526	7.517	0.009	1.000	2239694		7.88(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.624	7.614	0.010		24753508	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.624	7.615	0.009	1.000	13895071	5.17			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.677	7.668	0.009	1.020	16402113	5.12			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.810	7.800	0.010	1.038	9715521	4.80			
712.9 > 169.0	7.810	7.800	0.010	1.038	1482345		6.55(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Review Flags

M - Manually Integrated

Reagents:

PFC-LCS_00078	Amount Added:	10.00	Units: uL
PFC-IS_00021	Amount Added:	20.00	Units: uL
PFC_Surr_00021	Amount Added:	10.00	Units: uL

Report Date: 07-Jun-2016 14:09:01 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06012.d

Injection Date: 06-Jun-2016 15:39:12 Instrument ID: LC_LCMS5

Lims ID: STD0050

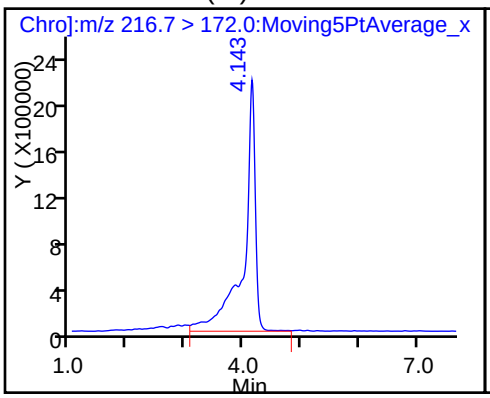
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 7

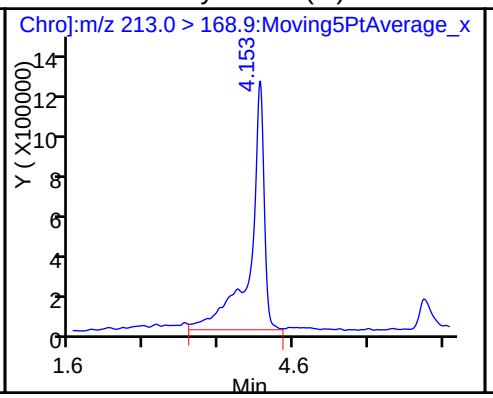
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

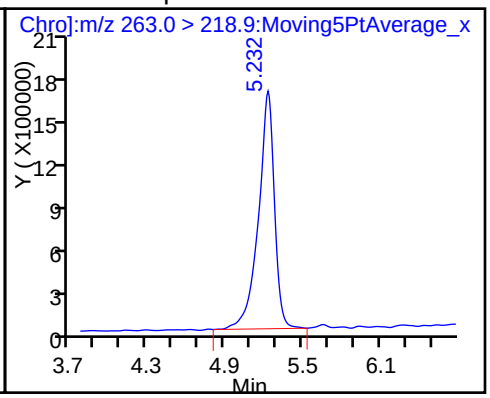
* 1 13C4 PFBA (IS)



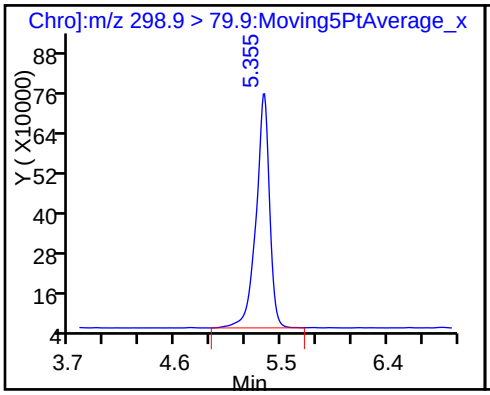
2 Perfluorobutyric acid (M)



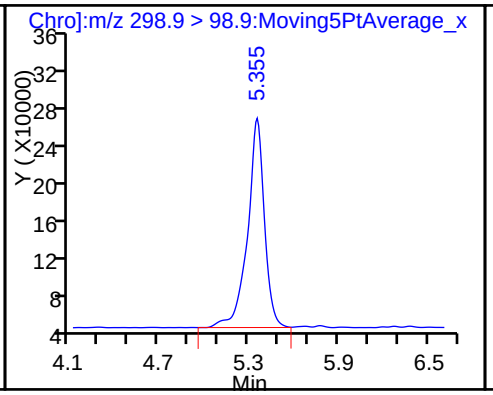
3 Perfluoropentanoic acid



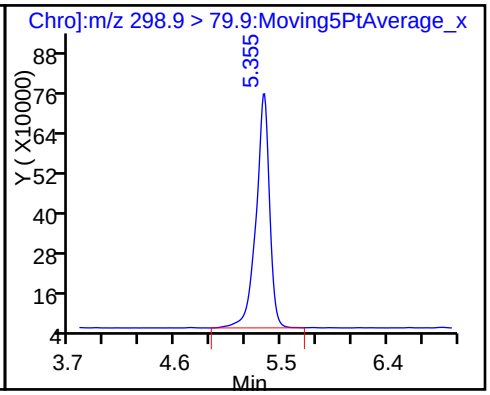
5 Perfluorobutanesulfonic acid



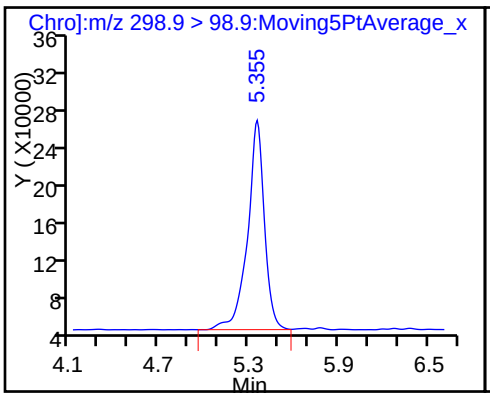
5 Perfluorobutanesulfonic acid



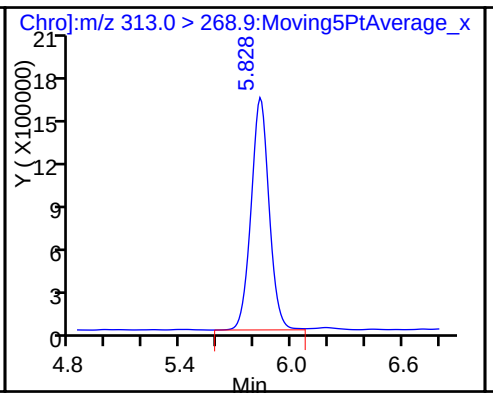
4 Perfluorobutane Sulfonate



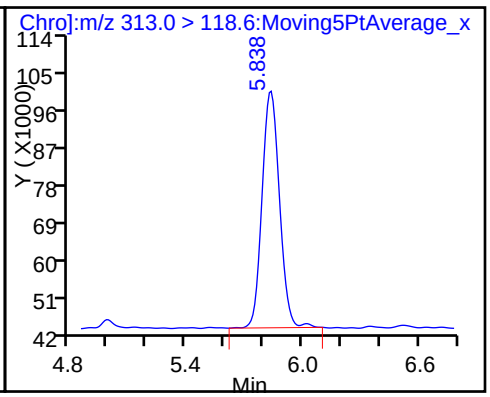
4 Perfluorobutane Sulfonate



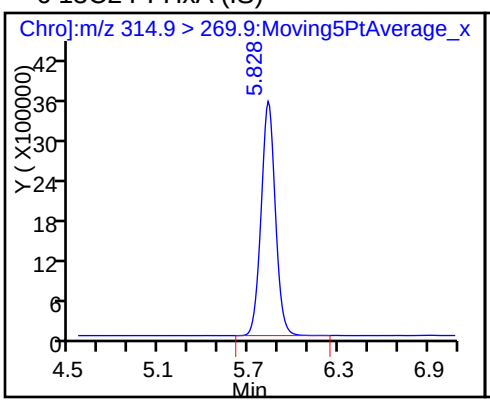
7 Perfluorohexanoic acid



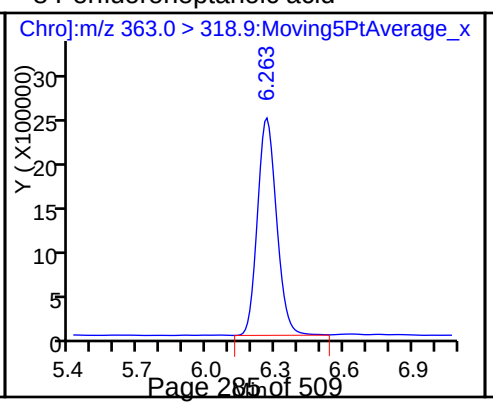
7 Perfluorohexanoic acid



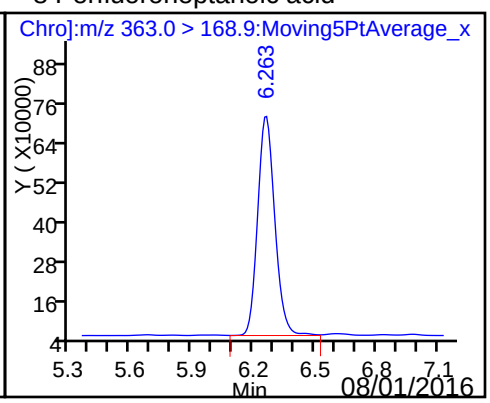
* 6 13C2 PFHxA (IS)



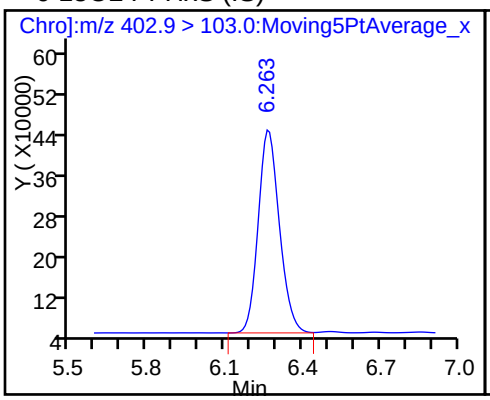
8 Perfluoroheptanoic acid



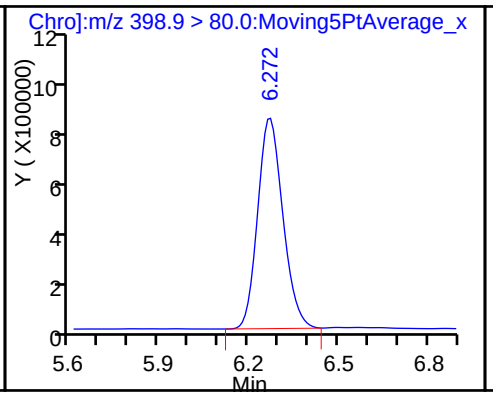
8 Perfluoroheptanoic acid



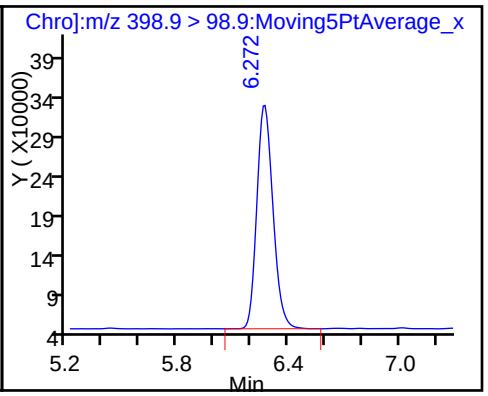
* 9 18O2 PFHxS (IS)



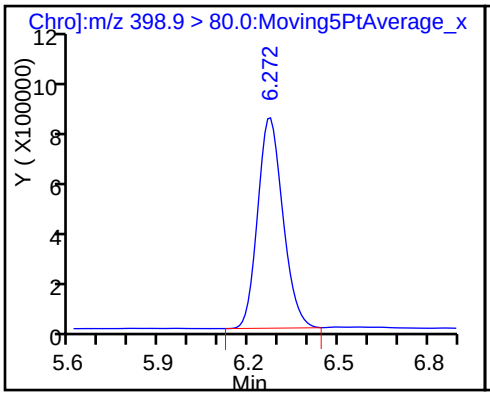
10 Perfluorohexane Sulfonate



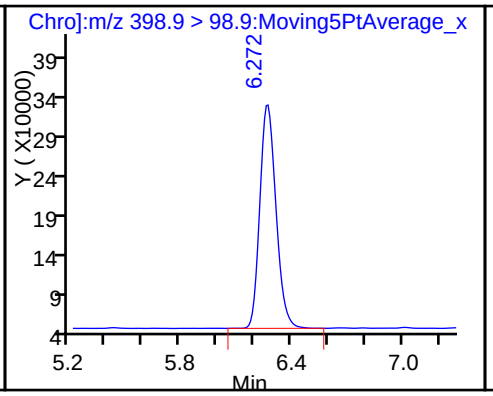
10 Perfluorohexane Sulfonate



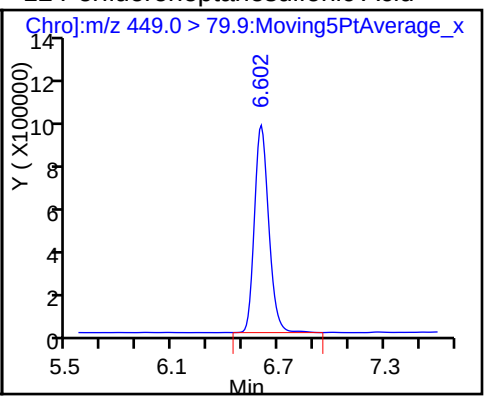
11 Perfluorohexanesulfonic acid



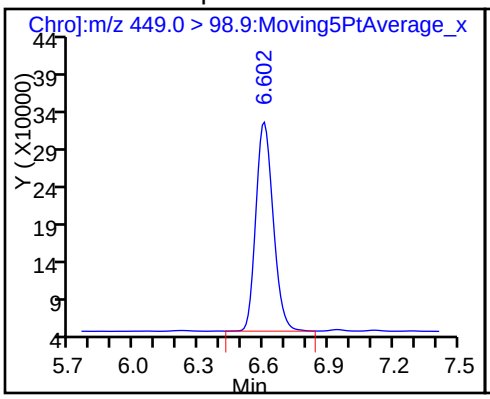
11 Perfluorohexanesulfonic acid



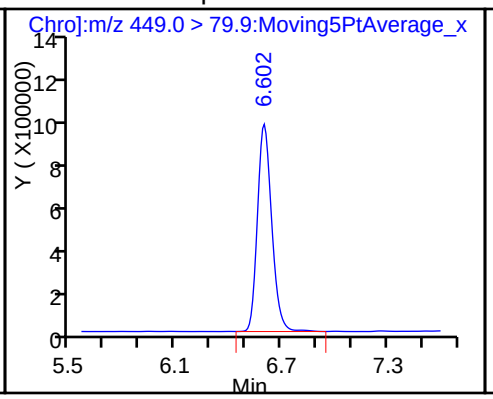
12 Perfluoroheptanesulfonic Acid



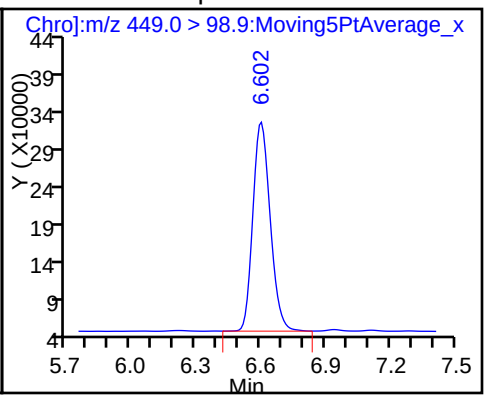
12 Perfluoroheptanesulfonic Acid



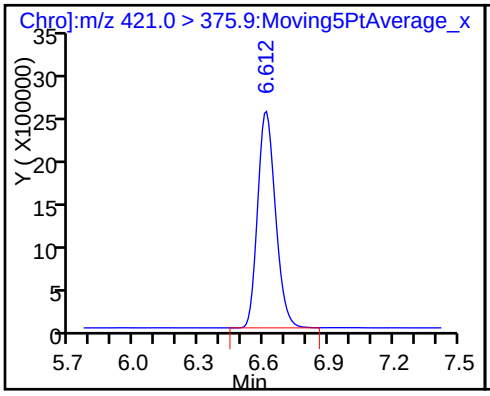
13 Perfluoroheptane Sulfonate



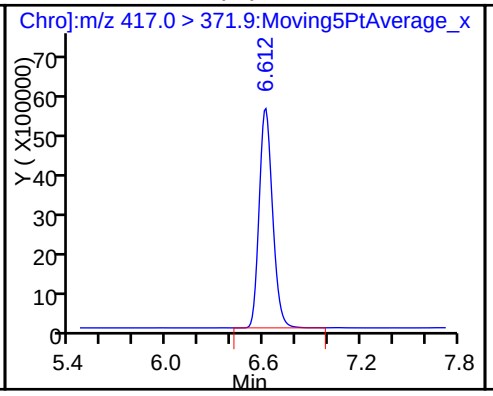
13 Perfluoroheptane Sulfonate



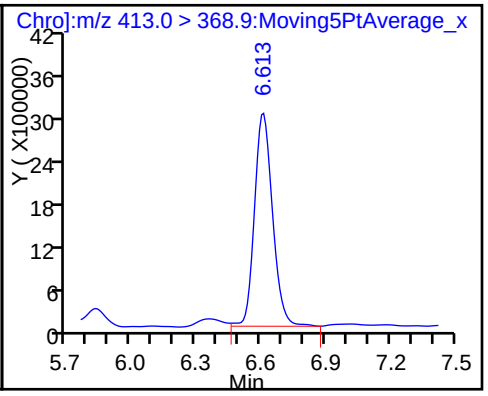
$ 14 13C8 PFOA



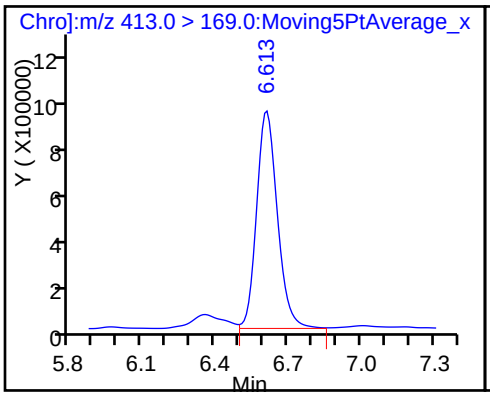
* 15 13C4 PFOA (IS)



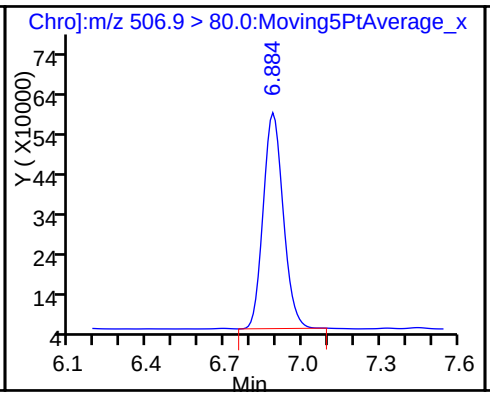
16 Perfluorooctanoic acid



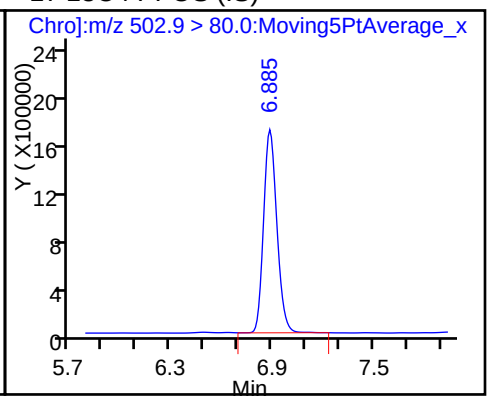
16 Perfluorooctanoic acid



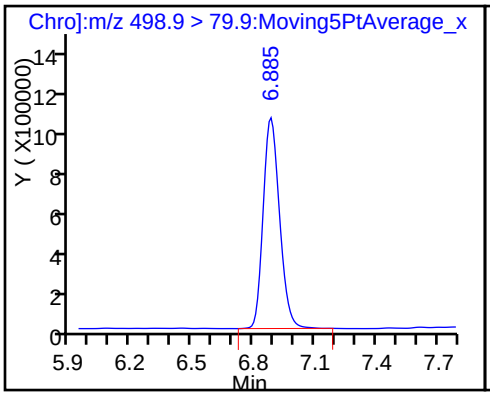
$ 18 13C8 PFOS



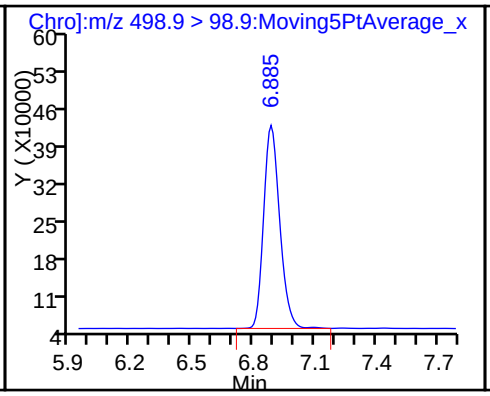
* 17 13C4 PFOS (IS)



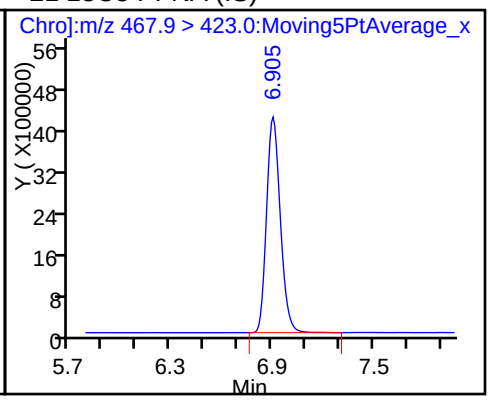
19 Perfluorooctane sulfonic acid



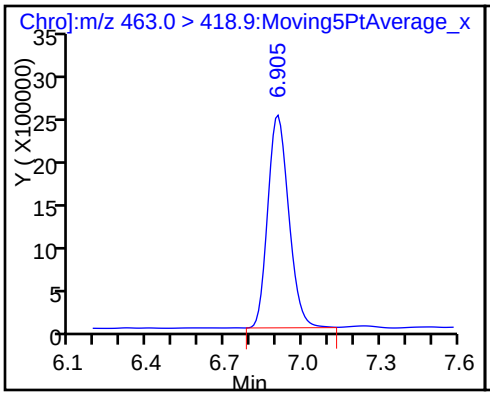
19 Perfluorooctane sulfonic acid



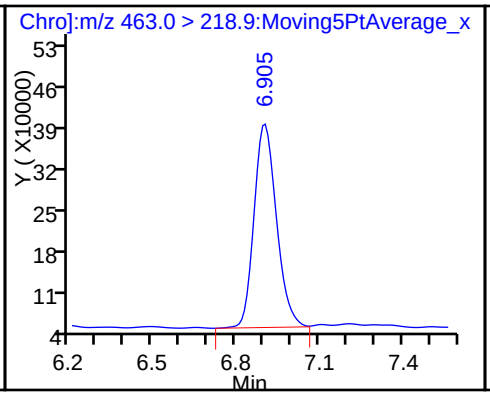
* 21 13C5 PFNA (IS)



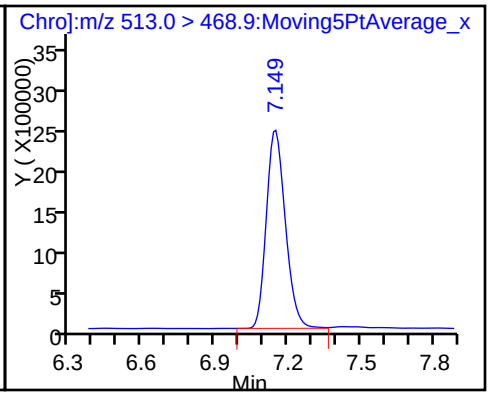
20 Perfluorononanoic acid



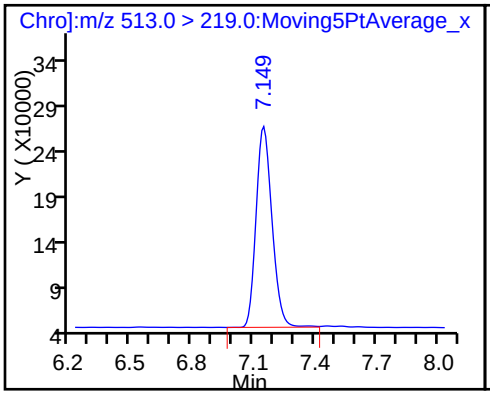
20 Perfluorononanoic acid



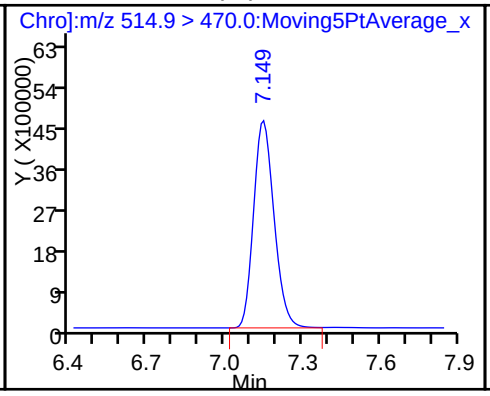
23 Perfluorodecanoic acid



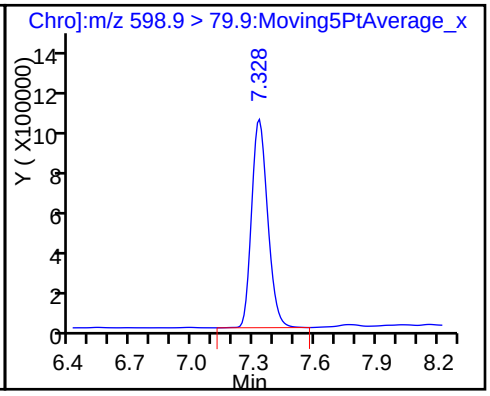
23 Perfluorodecanoic acid



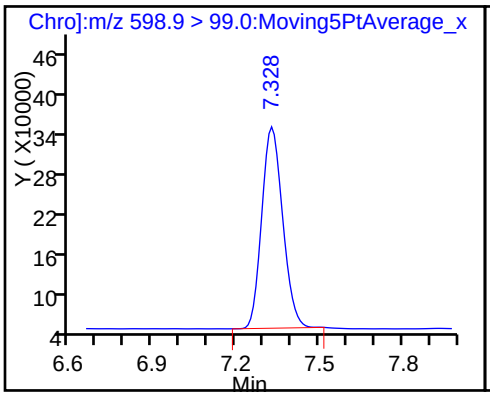
* 22 13C2 PFDA (IS)



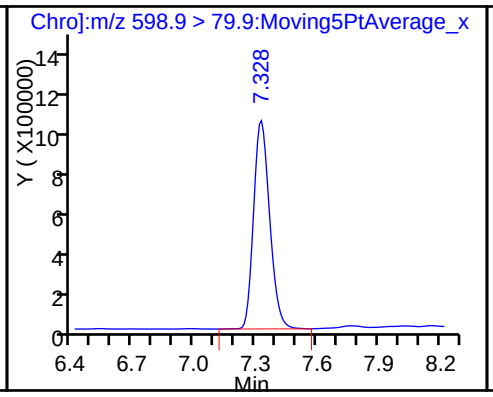
24 Perfluorodecane Sulfonic acid



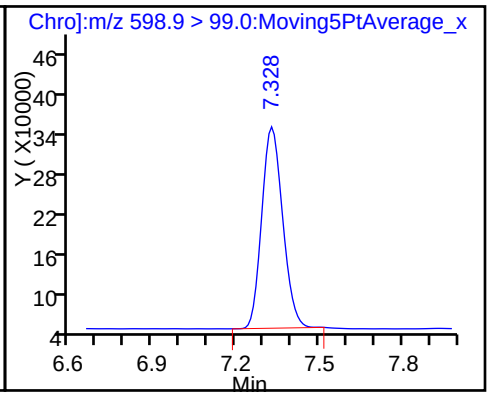
24 Perfluorodecane Sulfonic acid



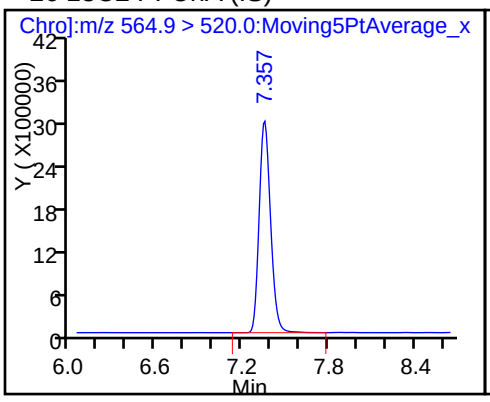
25 Perfluorodecane Sulfonate



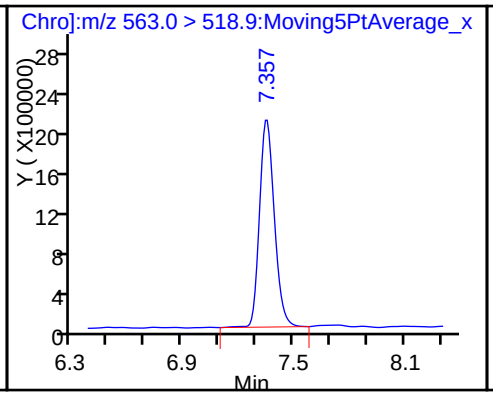
25 Perfluorodecane Sulfonate



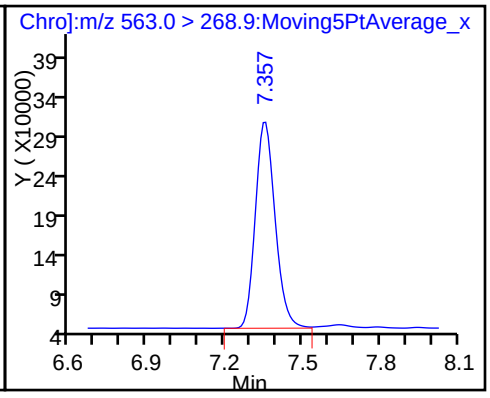
* 26 13C2 PFUnA (IS)



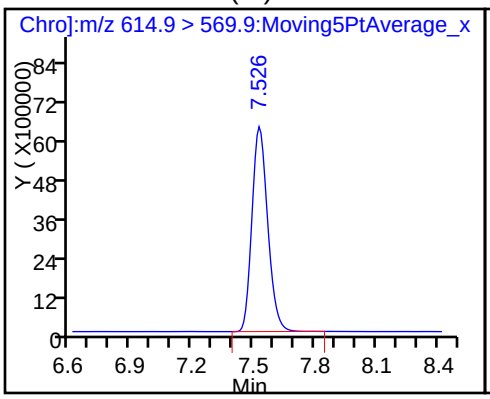
27 Perfluoroundecanoic acid



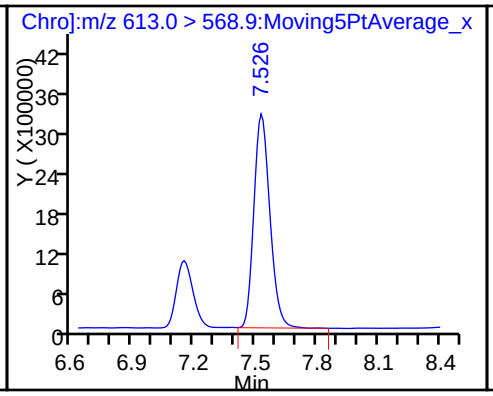
27 Perfluoroundecanoic acid



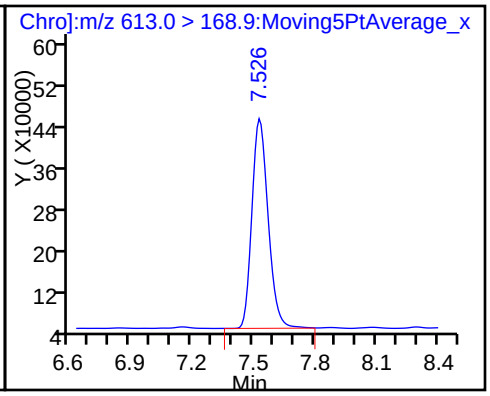
* 28 13C2 PFDoA (IS)



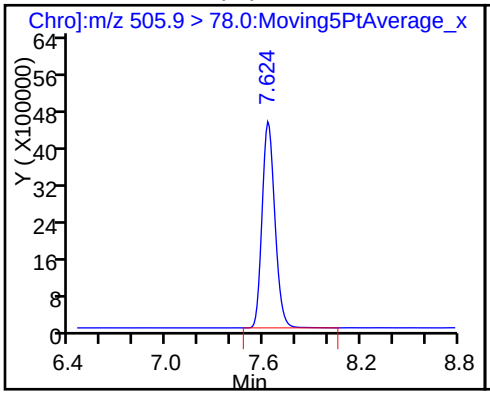
29 Perfluorododecanoic acid



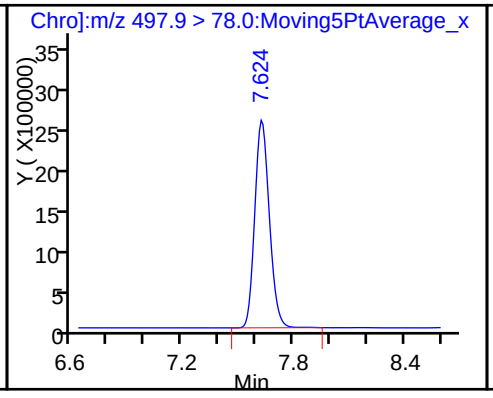
29 Perfluorododecanoic acid



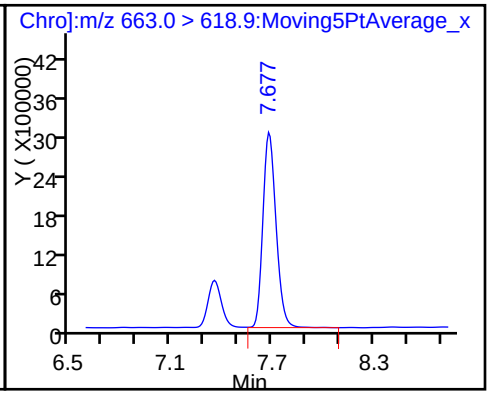
* 31 13C8 FOSA (IS)



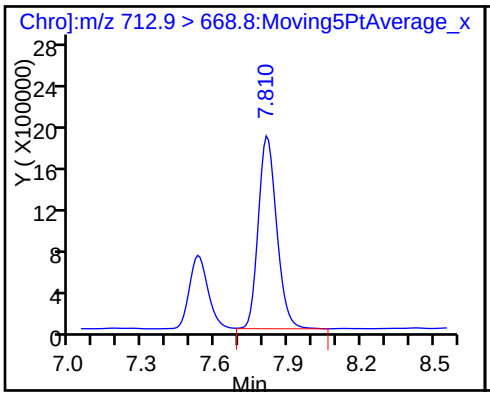
32 Perfluorooctane Sulfonamide



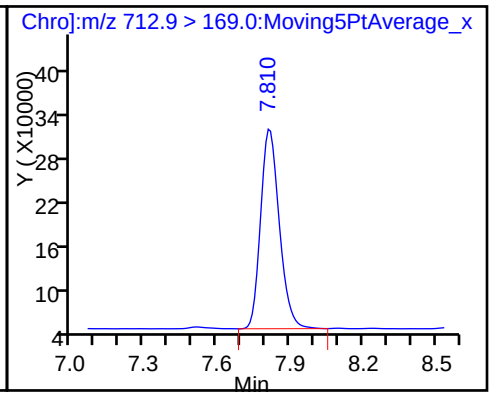
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



Manual Integration/User Assign Peak Report

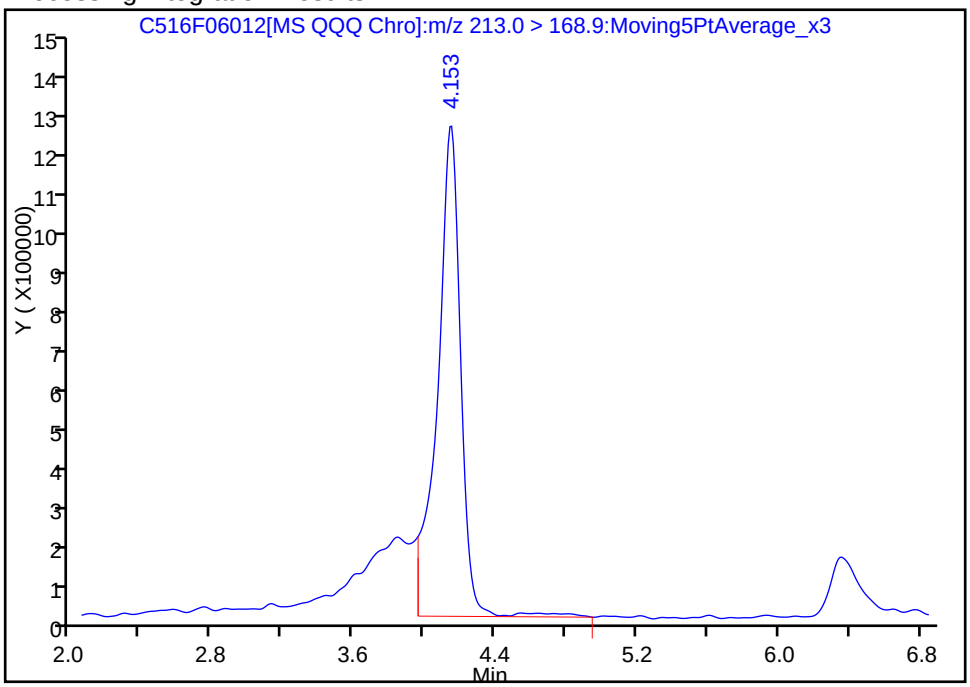
TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06012.d
Injection Date: 06-Jun-2016 15:39:12 Instrument ID: LC_LCMS5
Lims ID: STD0050
Client ID:
Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 7
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Method: 8321_PFC Limit Group: LC - PFC
Column: Detector MS QQQ

2 Perfluorobutyric acid, CAS: 375-22-4

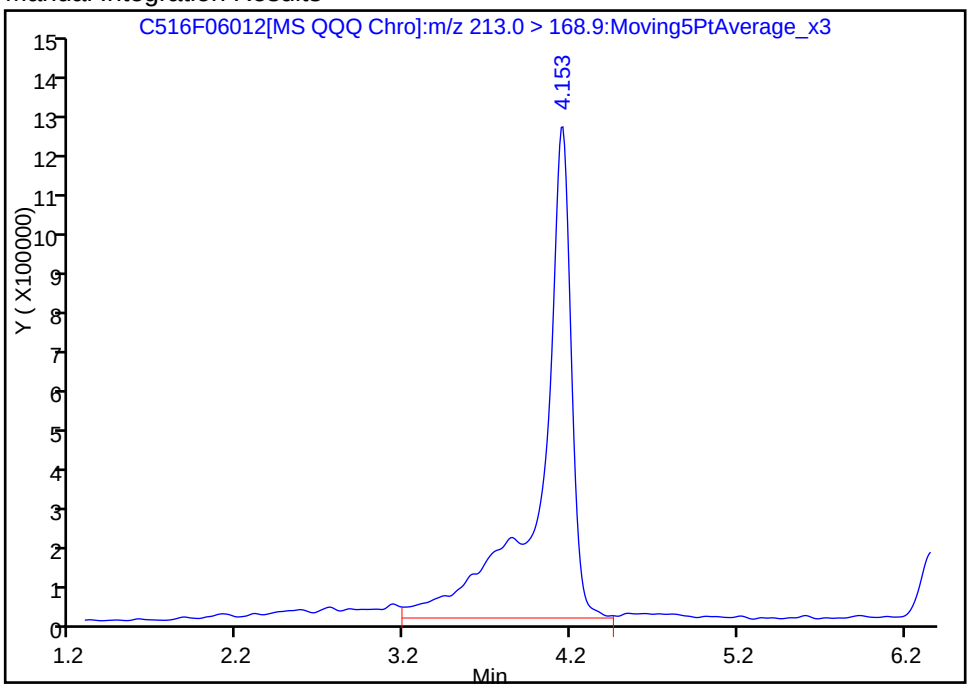
Processing Integration Results

RT: 4.15
Area: 10960038
Amount: 3.437278
Amount Units: ug/L



Manual Integration Results

RT: 4.15
Area: 15646483
Amount: 4.854483
Amount Units: ug/L



Reviewer: meyera, 07-Jun-2016 12:57:14
Audit Action: Manually Integrated
Audit Reason: Baseline

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06013.d
Lims ID: STD0100
Client ID:
Sample Type: IC Calib Level: 6
Inject. Date: 06-Jun-2016 15:51:29 ALS Bottle#: 0 Worklist Smp#: 8
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: STD 0100, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 07-Jun-2016 14:09:06 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK003

First Level Reviewer: meyera Date: 07-Jun-2016 12:57:30

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.143	4.162	-0.019		28249772	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	4.143	4.162	-0.019	1.000	30314584	10.0			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.213	5.232	-0.019	0.896	26550357	10.3			
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.345	5.364	-0.019	0.855	10998014	8.11			
298.9 > 98.9	5.345	5.364	-0.019	0.855	3490279		3.15(2.57-2.57)		
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.345	5.364	-0.019	0.855	10998014	8.11			
298.9 > 98.9	5.345	5.364	-0.019	0.855	3490279		3.15(1.80-3.35)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.818	5.818	0.0		21981575	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.819	5.819	0.0	1.000	20841959	10.0			
313.0 > 118.6	5.819	5.819	0.0	1.000	627599		33.21(34.05-63.23)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.244	6.244	0.0	0.947	27517800	10.8			
363.0 > 168.9	6.244	6.244	0.0	0.947	7342155		3.75(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.253	6.253	0.0		2455924	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.253	6.253	0.0	1.000	8927761	8.88			R
398.9 > 98.9	6.253	6.253	0.0	1.000	3322393		2.69(1.30-2.41)		
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.253	6.253	0.0	1.000	8927761	8.88			
398.9 > 98.9	6.253	6.253	0.0	1.000	3322393		2.69(1.85-1.85)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.583	6.583	0.0	0.960	10232509	9.69			
449.0 > 98.9	6.583	6.583	0.0	0.960	3190245		3.21(0.00-0.00)		
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.583	6.583	0.0	0.960	10232509	9.69			
449.0 > 98.9	6.583	6.583	0.0	0.960	3190245		3.21(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.593	6.593	0.0	1.000	24662701	10.4			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.593	6.593	0.0		29389195	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.594	6.594	0.0	1.000	32009782	10.5			
413.0 > 169.0	6.594	6.594	0.0	1.000	9374363		3.41(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.856	6.865	-0.009	1.000	5353658	10.1			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.856	6.866	-0.010		8329164	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.857	6.866	-0.009	1.000	10470143	10.3			R
498.9 > 98.9	6.857	6.866	-0.009	1.000	3923550		2.67(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.876	6.886	-0.010		22181375	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.877	6.886	-0.010	1.000	25021117	10.1			
463.0 > 218.9	6.877	6.886	-0.010	1.000	3962775		6.31(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.121	7.130	-0.009		24664744	10.0			
23 Perfluorodecanoic acid									R
513.0 > 468.9	7.121	7.130	-0.009	1.000	25238466	10.2			R
513.0 > 219.0	7.121	7.130	-0.009	1.000	2479122		10.18(10.49-19.48)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.309	7.318	-0.009	1.066	10758635	9.98			
598.9 > 99.0	7.309	7.318	-0.009	1.066	3209764		3.35(2.84-2.84)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.309	7.318	-0.009	1.066	10758635	9.98			
598.9 > 99.0	7.309	7.318	-0.009	1.066	3209764		3.35(1.99-3.69)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.338	7.347	-0.009		14532277	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.329	7.347	-0.019	0.999	21285381	10.3			R
563.0 > 268.9	7.338	7.347	-0.009	1.000	2714333		7.84(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.507	7.517	-0.010		31864705	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.507	7.517	-0.010	1.000	33735988	10.3			
613.0 > 168.9	7.507	7.517	-0.010	1.000	4286959		7.87(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.605	7.614	-0.009		23840347	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.605	7.615	-0.010	1.000	26107207	10.1			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.658	7.668	-0.010	1.020	30556604	10.3			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.791	7.800	-0.009	1.038	18737310	9.95			
712.9 > 169.0	7.791	7.800	-0.009	1.038	2736267		6.85(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Reagents:

PFC-LCS_00078	Amount Added:	20.00	Units: uL
PFC-IS_00021	Amount Added:	20.00	Units: uL
PFC_Surr_00021	Amount Added:	20.00	Units: uL

Report Date: 07-Jun-2016 14:09:07 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06013.d

Injection Date: 06-Jun-2016 15:51:29 Instrument ID: LC_LCMS5

Lims ID: STD0100

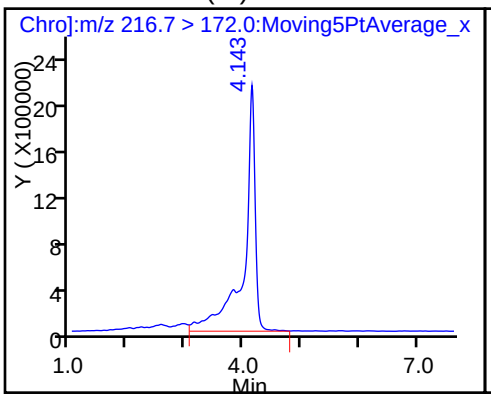
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 8

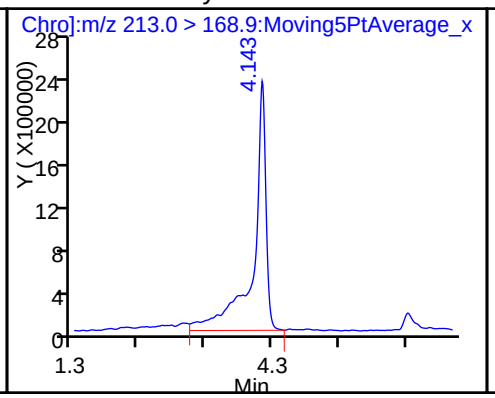
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

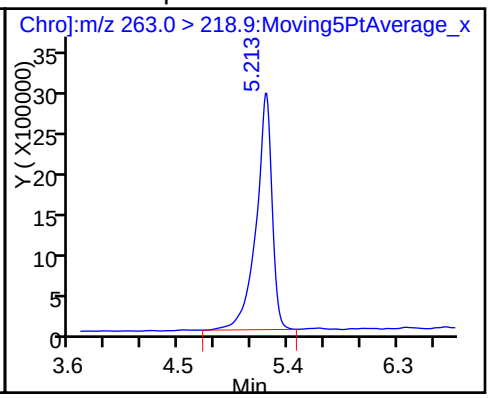
* 1 13C4 PFBA (IS)



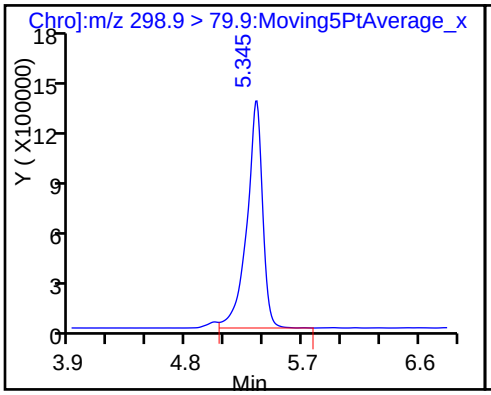
2 Perfluorobutyric acid



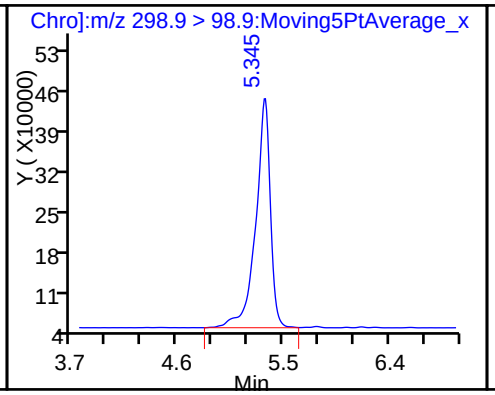
3 Perfluoropentanoic acid



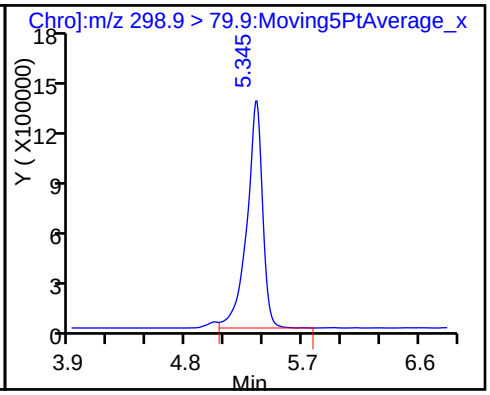
5 Perfluorobutanesulfonic acid



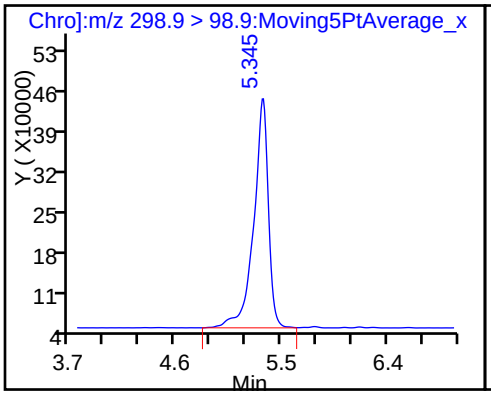
5 Perfluorobutanesulfonic acid



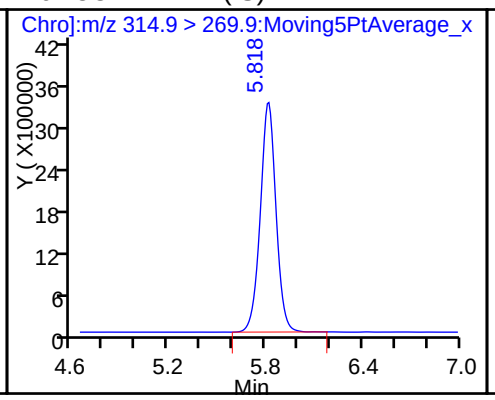
4 Perfluorobutane Sulfonate



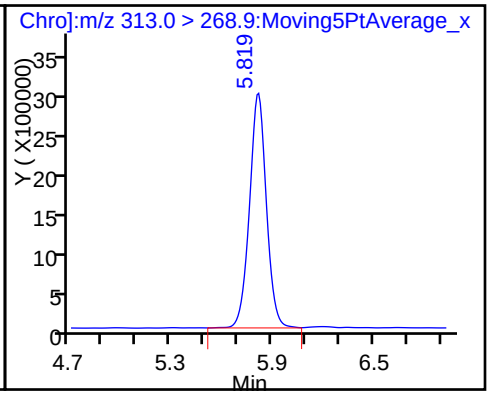
4 Perfluorobutane Sulfonate



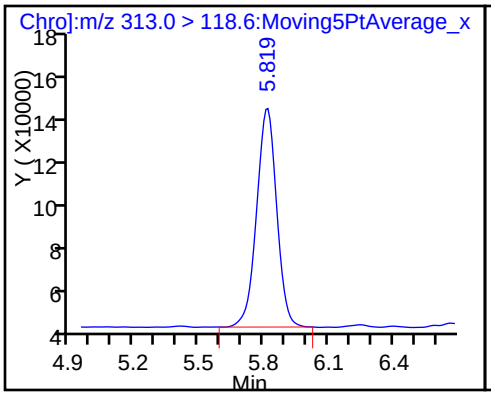
* 6 13C2 PFHxA (IS)



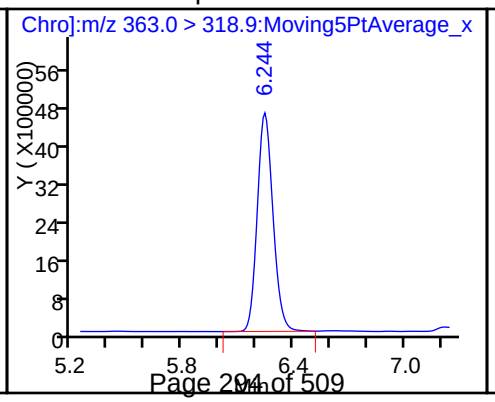
7 Perfluorohexanoic acid



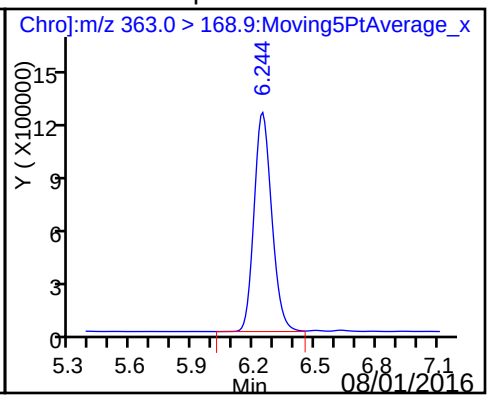
7 Perfluorohexanoic acid



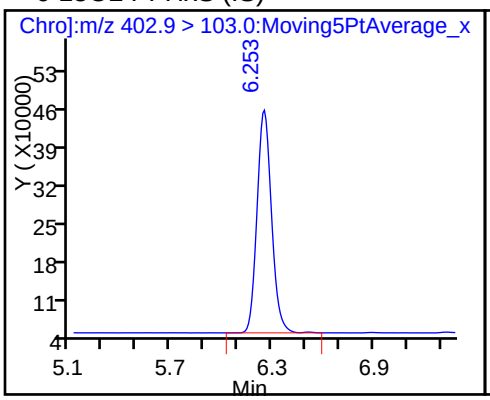
8 Perfluoroheptanoic acid



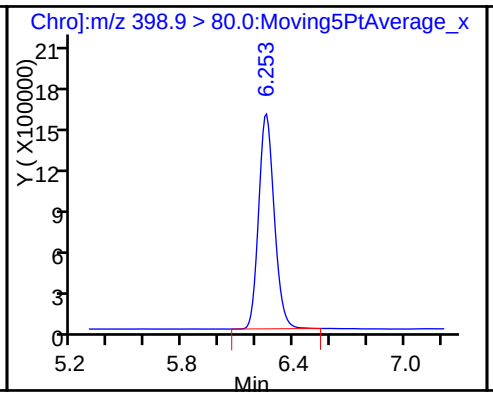
8 Perfluoroheptanoic acid



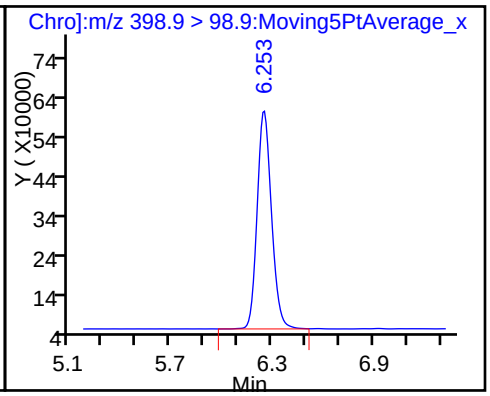
* 9 18O2 PFHxS (IS)



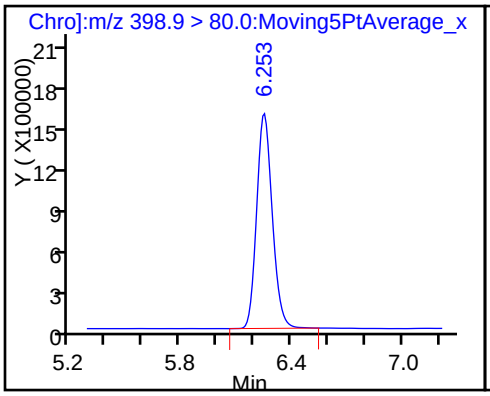
10 Perfluorohexane Sulfonate



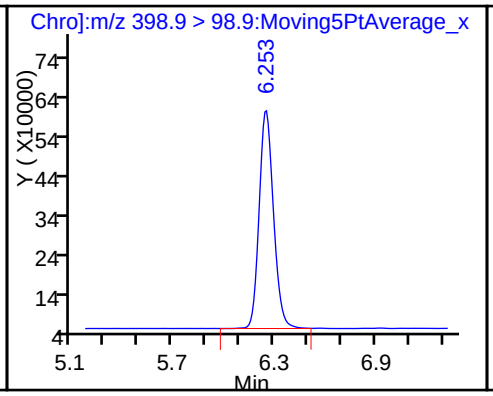
10 Perfluorohexane Sulfonate



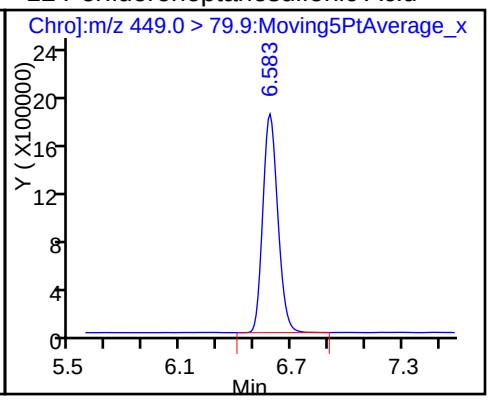
11 Perfluorohexanesulfonic acid



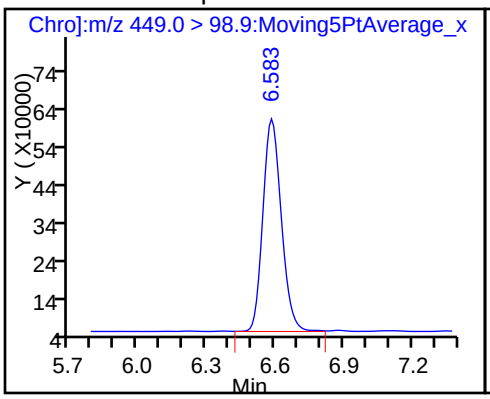
11 Perfluorohexanesulfonic acid



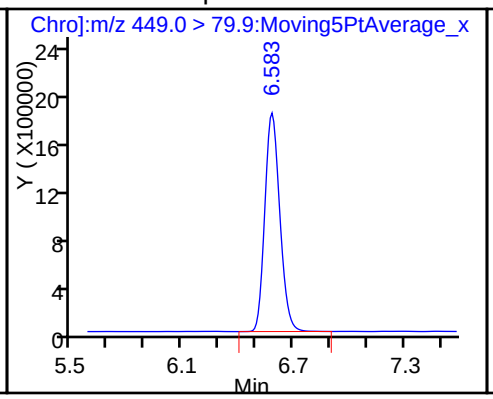
12 Perfluoroheptanesulfonic Acid



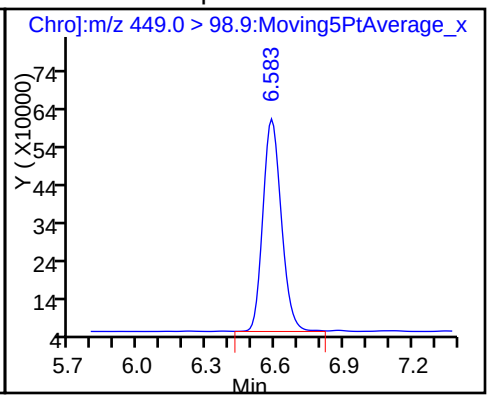
12 Perfluoroheptanesulfonic Acid



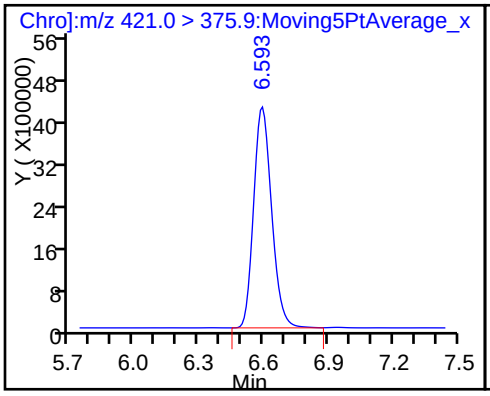
13 Perfluoroheptane Sulfonate



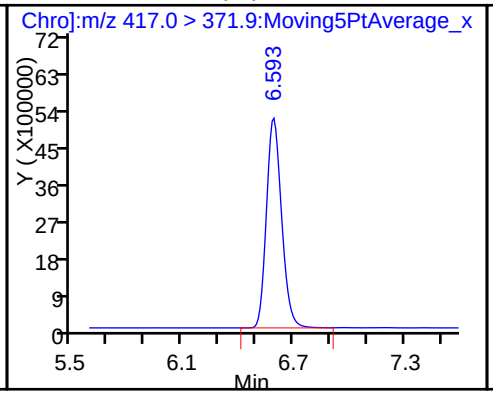
13 Perfluoroheptane Sulfonate



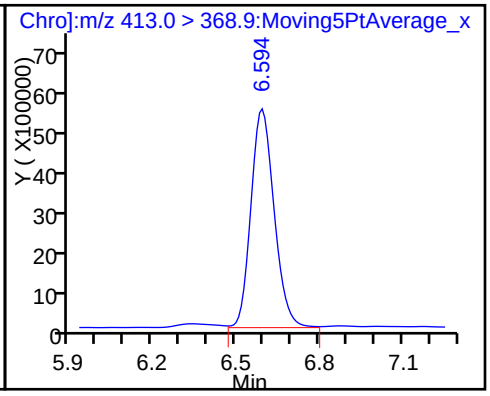
$ 14 13C8 PFOA



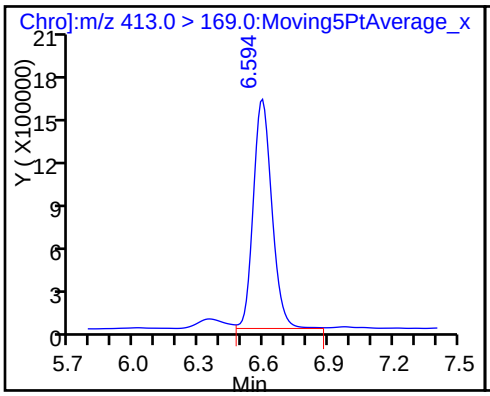
* 15 13C4 PFOA (IS)



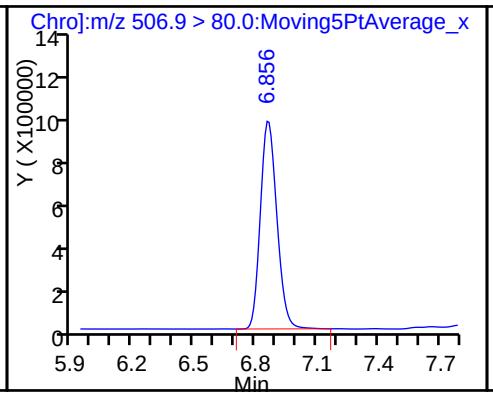
16 Perfluorooctanoic acid



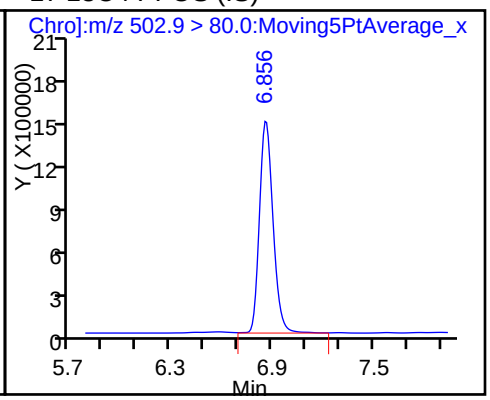
16 Perfluorooctanoic acid



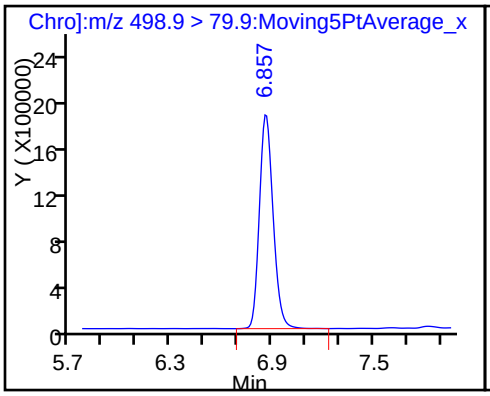
$ 18 13C8 PFOS



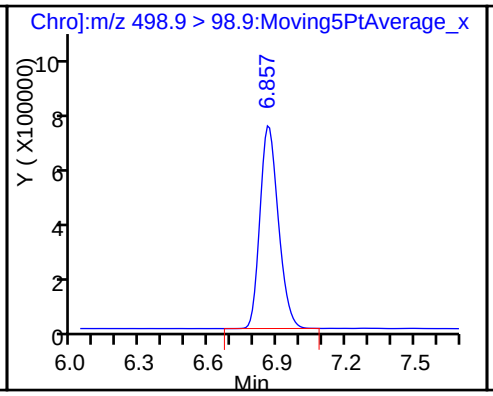
* 17 13C4 PFOS (IS)



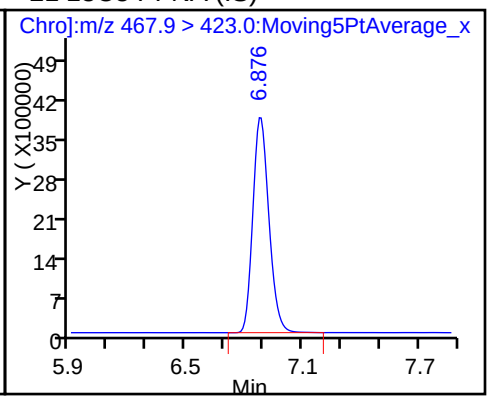
19 Perfluorooctane sulfonic acid



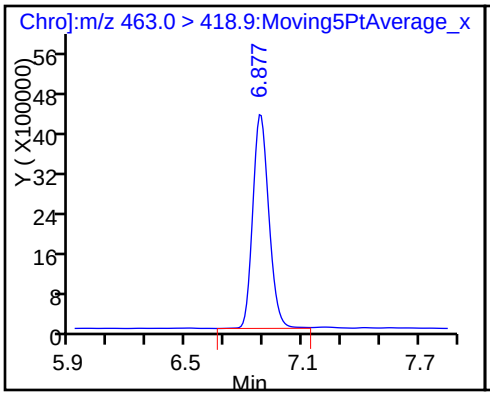
19 Perfluorooctane sulfonic acid



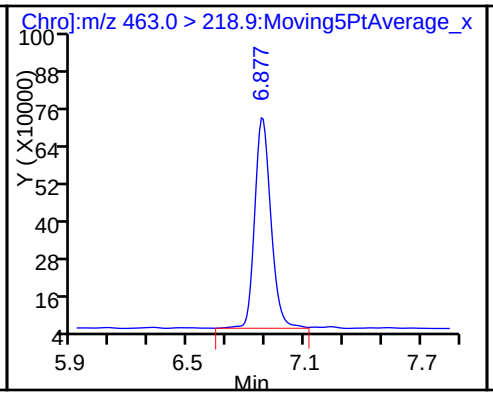
* 21 13C5 PFNA (IS)



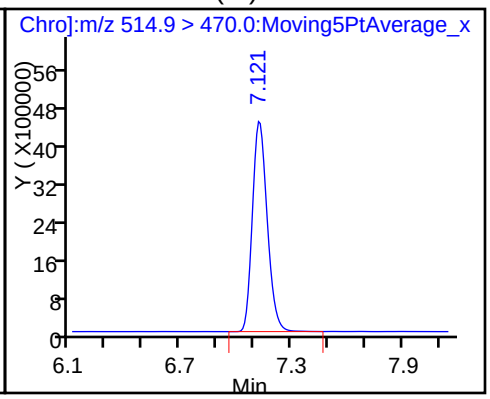
20 Perfluorononanoic acid



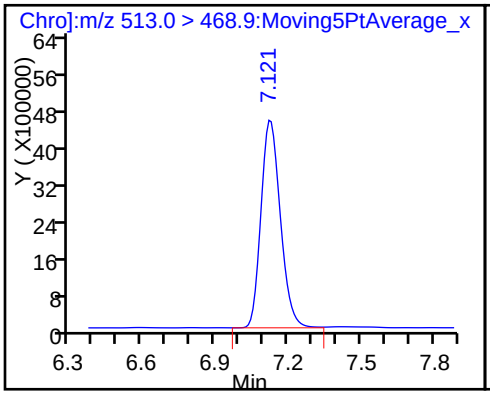
20 Perfluorononanoic acid



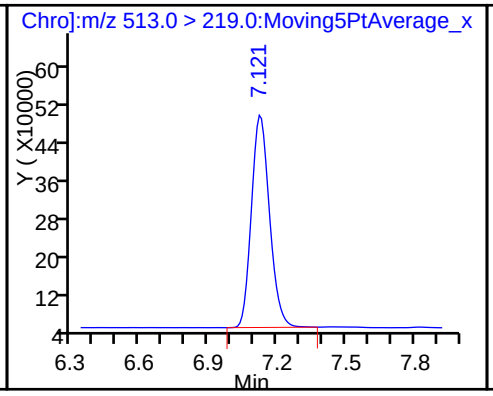
* 22 13C2 PFDA (IS)



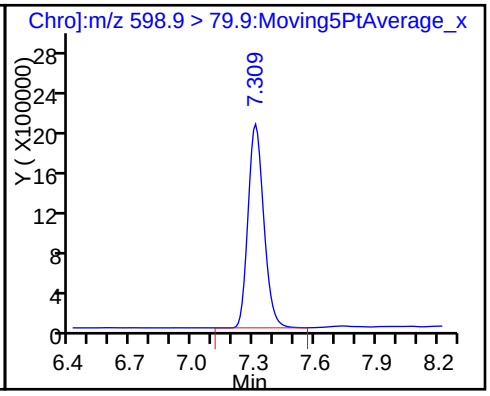
23 Perfluorodecanoic acid



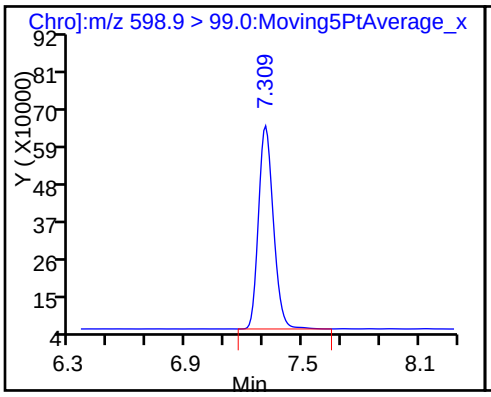
23 Perfluorodecanoic acid



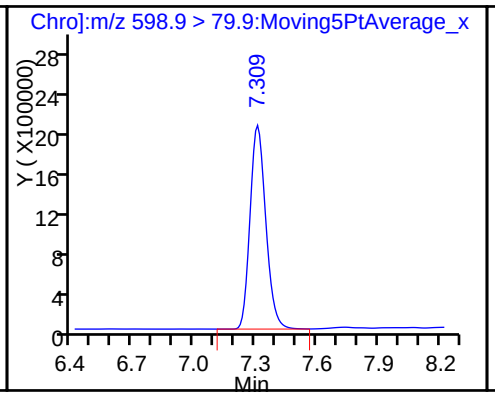
24 Perfluorodecane Sulfonic acid



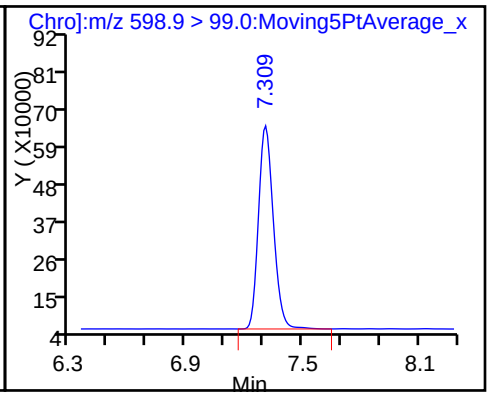
24 Perfluorodecane Sulfonic acid



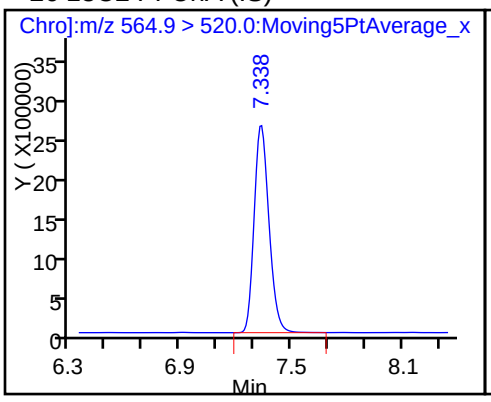
25 Perfluorodecane Sulfonate



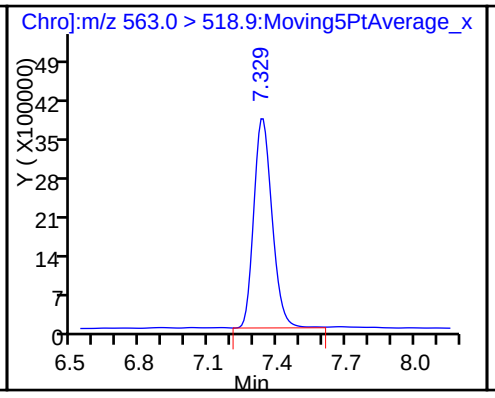
25 Perfluorodecane Sulfonate



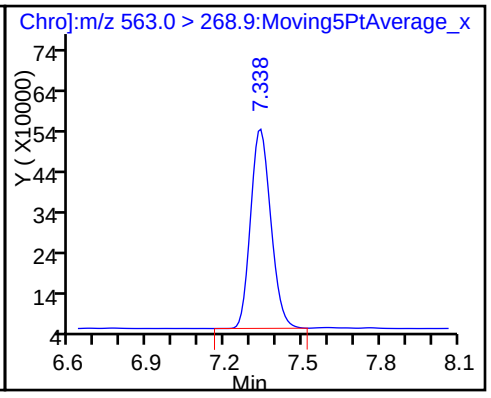
* 26 13C2 PFUnA (IS)



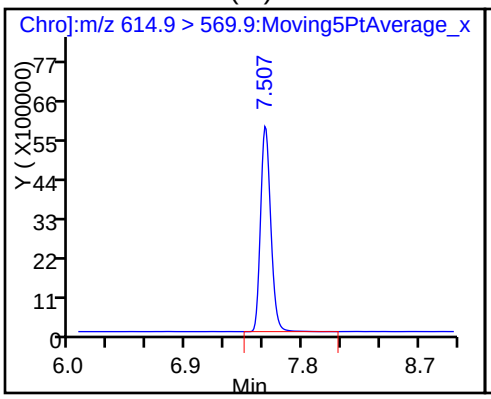
27 Perfluoroundecanoic acid



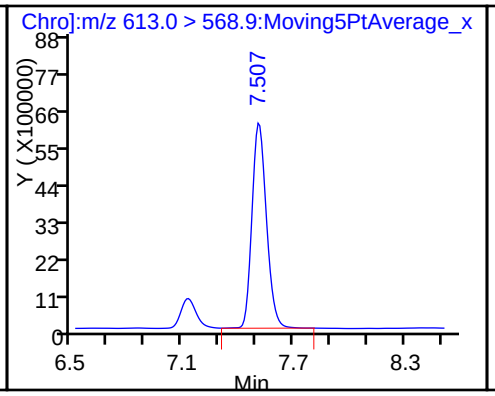
27 Perfluoroundecanoic acid



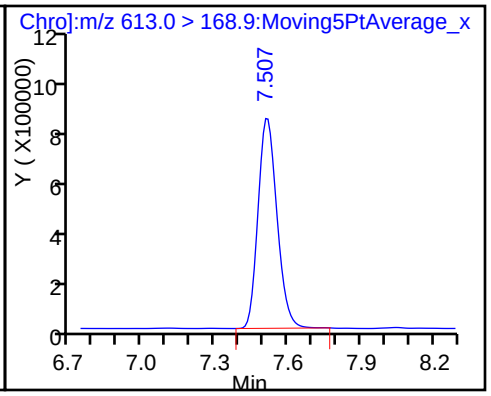
* 28 13C2 PFDoA (IS)



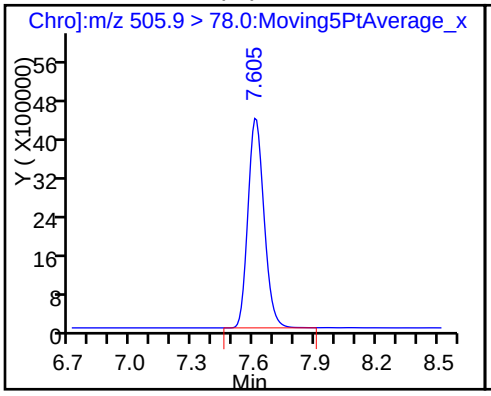
29 Perfluorododecanoic acid



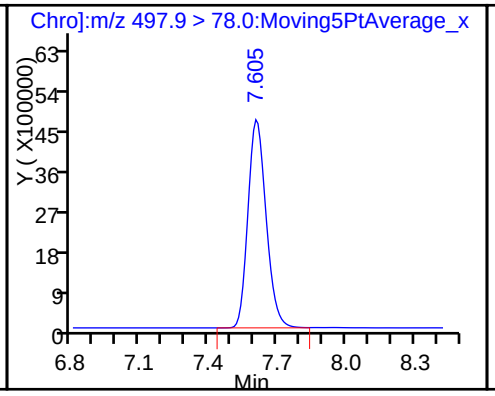
29 Perfluorododecanoic acid



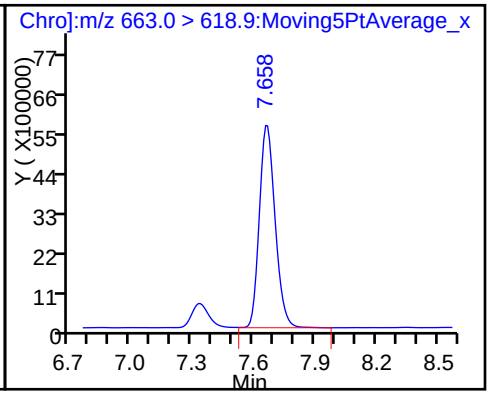
* 31 13C8 FOSA (IS)



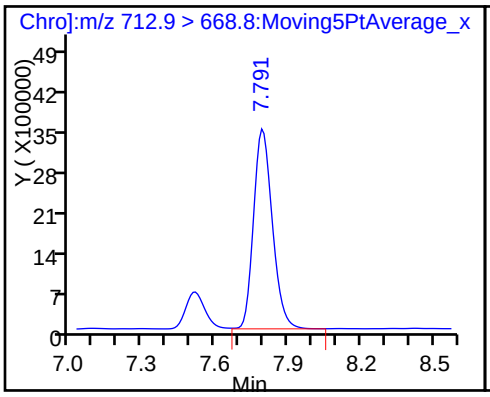
32 Perfluorooctane Sulfonamide



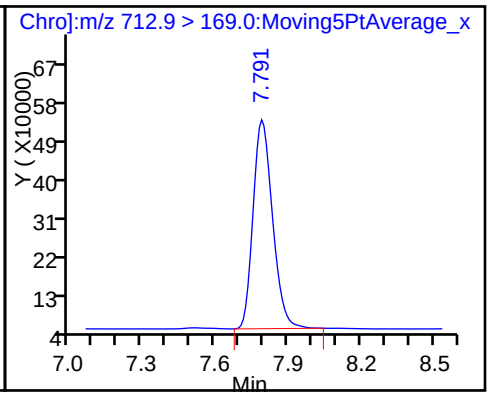
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06014.d
Lims ID: STD0200
Client ID:
Sample Type: IC Calib Level: 7
Inject. Date: 06-Jun-2016 16:03:46 ALS Bottle#: 0 Worklist Smp#: 9
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: STD 0200, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 07-Jun-2016 14:09:11 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK003

First Level Reviewer: meyera Date: 07-Jun-2016 12:57:55

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									M
216.7 > 172.0	4.162	4.162	0.0		29015390	10.0			M
2 Perfluorobutyric acid									
213.0 > 168.9	4.162	4.162	0.0	1.000	64808389	20.8			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.251	5.232	0.019	0.900	52945593	20.8			
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.374	5.364	0.010	0.858	21952626	17.8			
298.9 > 98.9	5.374	5.364	0.010	0.858	6871828		3.19(2.57-2.57)		
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.374	5.364	0.010	0.858	21952626	17.8			
298.9 > 98.9	5.374	5.364	0.010	0.858	6871828		3.19(1.80-3.35)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.837	5.818	0.019		21659671	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.838	5.819	0.019	1.000	40945931	20.0			
313.0 > 118.6	5.838	5.819	0.019	1.000	1093299		37.45(34.05-63.23)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.254	6.244	0.010	0.947	50554239	20.9			
363.0 > 168.9	6.254	6.244	0.010	0.947	13048171		3.87(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.263	6.253	0.010		2237000	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.263	6.253	0.010	1.000	17932033	19.7			R
398.9 > 98.9	6.263	6.253	0.010	1.000	6554762		2.74(1.30-2.41)		
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.263	6.253	0.010	1.000	17932033	19.7			
398.9 > 98.9	6.263	6.253	0.010	1.000	6554762		2.74(1.85-1.85)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.593	6.583	0.010	0.960	20264466	18.8			
449.0 > 98.9	6.593	6.583	0.010	0.960	6205577		3.27(0.00-0.00)		
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.593	6.583	0.010	0.960	20264466	18.8			
449.0 > 98.9	6.593	6.583	0.010	0.960	6205577		3.27(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.603	6.593	0.010	1.000	41702455	18.6			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.603	6.593	0.010		27817355	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.603	6.594	0.009	1.000	60046068	20.8			
413.0 > 169.0	6.603	6.594	0.009	1.000	17669896		3.40(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.865	6.865	0.0	1.000	9525828	17.5			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.866	6.866	0.0		8502855	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.866	6.866	0.0	1.000	19674973	18.9			R
498.9 > 98.9	6.866	6.866	0.0	1.000	7257361		2.71(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.895	6.886	0.009		19553054	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.886	6.886	0.0	0.999	43845776	20.0			
463.0 > 218.9	6.886	6.886	0.0	0.999	6517013		6.73(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.130	7.130	0.0		25049763	10.0			
23 Perfluorodecanoic acid									R
513.0 > 468.9	7.130	7.130	0.0	1.000	48421431	19.2			R
513.0 > 219.0	7.130	7.130	0.0	1.000	4857980		9.97(10.49-19.48)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.309	7.318	-0.009	1.065	21695661	19.8			
598.9 > 99.0	7.309	7.318	-0.009	1.065	6263537		3.46(2.84-2.84)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.309	7.318	-0.009	1.065	21695661	19.8			
598.9 > 99.0	7.309	7.318	-0.009	1.065	6263537		3.46(1.99-3.69)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.338	7.347	-0.009		14324439	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.338	7.347	-0.009	1.000	39180966	19.3			R
563.0 > 268.9	7.338	7.347	-0.009	1.000	5065272		7.74(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.507	7.517	-0.010		30670086	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.507	7.517	-0.010	1.000	63246783	20.1			
613.0 > 168.9	7.507	7.517	-0.010	1.000	8435480		7.50(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.605	7.614	-0.009		24516831	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.605	7.615	-0.010	1.000	51602388	19.4			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.658	7.668	-0.010	1.020	59415459	20.9			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.791	7.800	-0.009	1.038	39118116	21.6			
712.9 > 169.0	7.791	7.800	-0.009	1.038	5375239		7.28(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Review Flags

M - Manually Integrated

Reagents:

PFC-LCS_00078	Amount Added:	40.00	Units: uL
PFC-IS_00021	Amount Added:	20.00	Units: uL
PFC_Surr_00021	Amount Added:	40.00	Units: uL

Report Date: 07-Jun-2016 14:09:11 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06014.d

Injection Date: 06-Jun-2016 16:03:46 Instrument ID: LC_LCMS5

Lims ID: STD0200

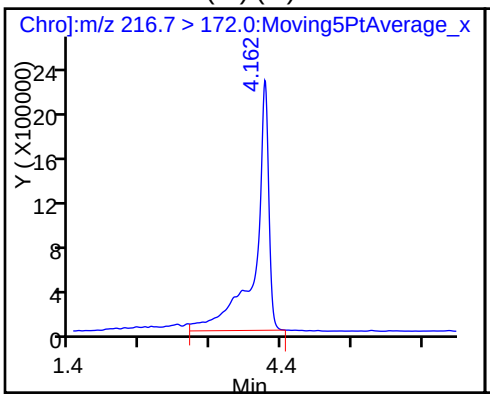
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 9

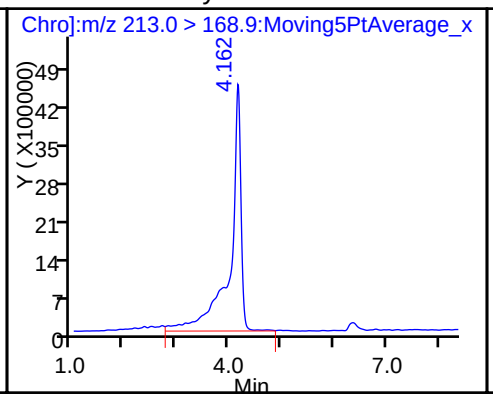
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

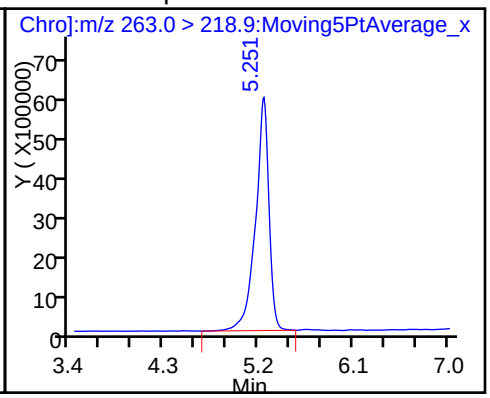
* 1 13C4 PFBA (IS) (M)



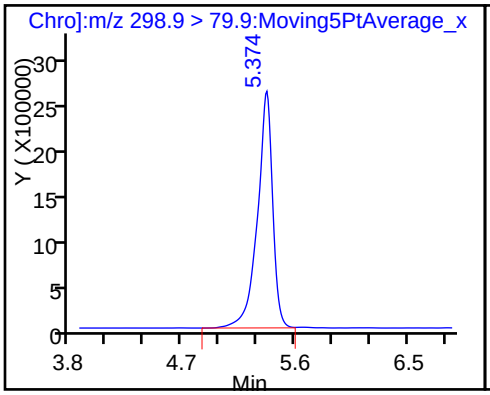
2 Perfluorobutyric acid



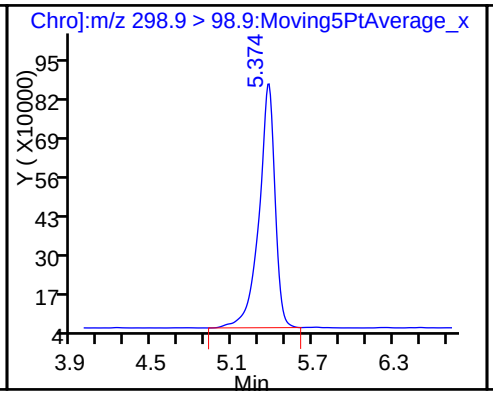
3 Perfluoropentanoic acid



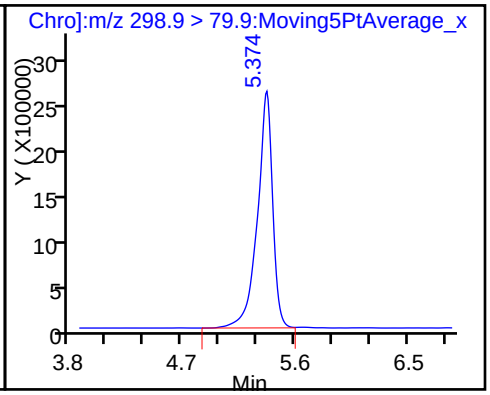
5 Perfluorobutanesulfonic acid



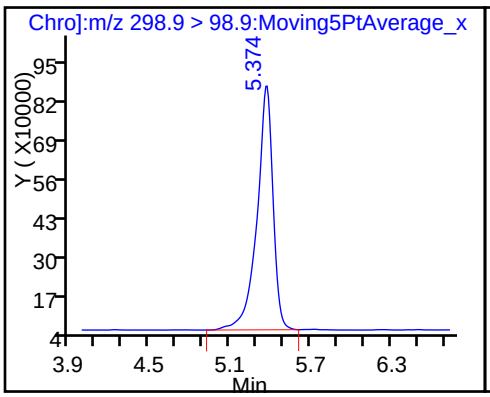
5 Perfluorobutanesulfonic acid



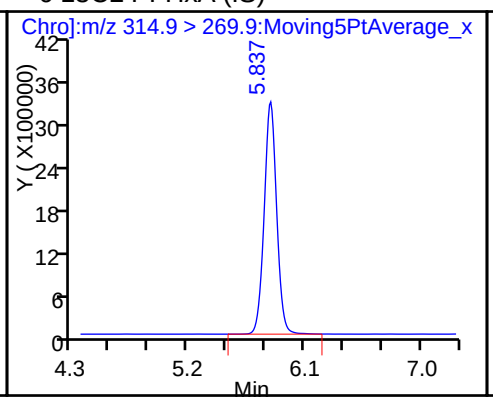
4 Perfluorobutane Sulfonate



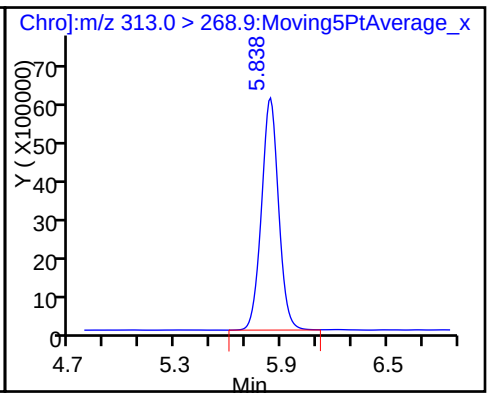
4 Perfluorobutane Sulfonate



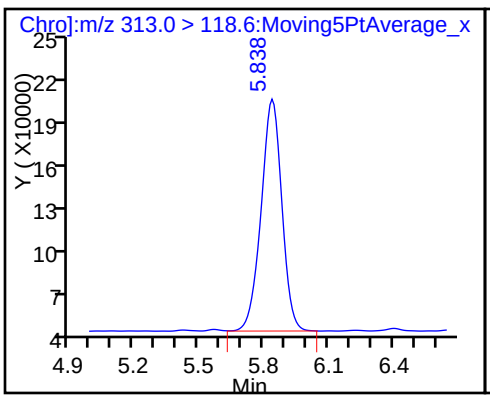
* 6 13C2 PFHxA (IS)



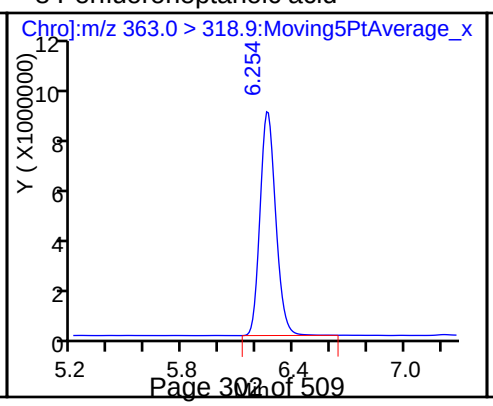
7 Perfluorohexanoic acid



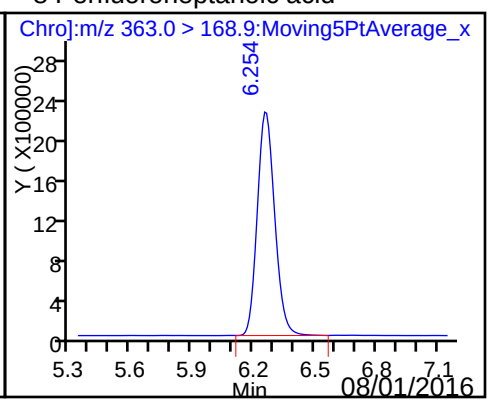
7 Perfluorohexanoic acid



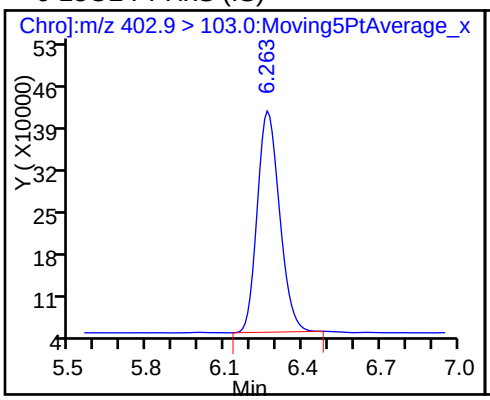
8 Perfluoroheptanoic acid



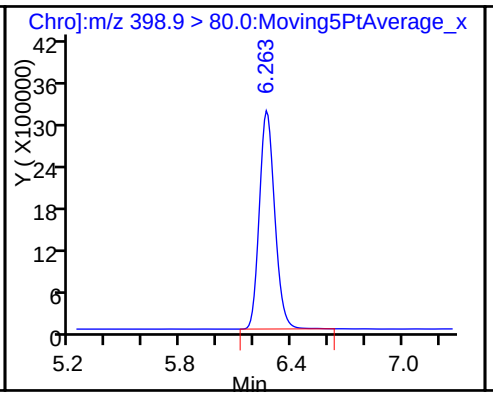
8 Perfluoroheptanoic acid



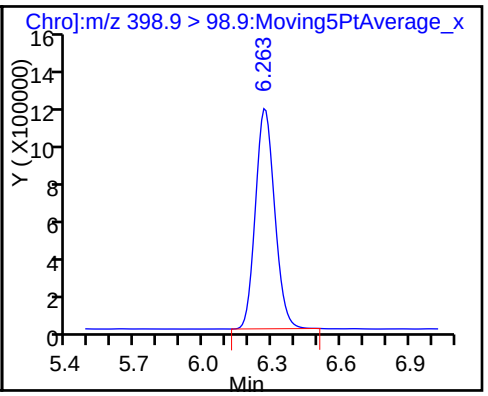
* 9 18O2 PFHxS (IS)



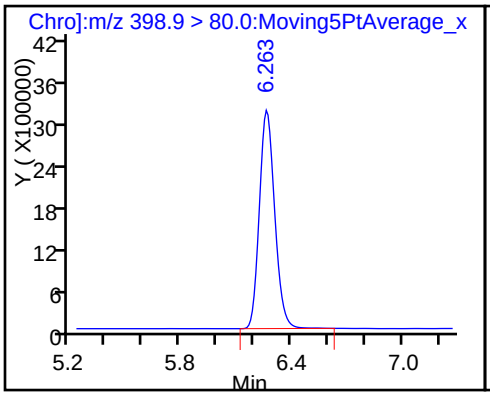
10 Perfluorohexane Sulfonate



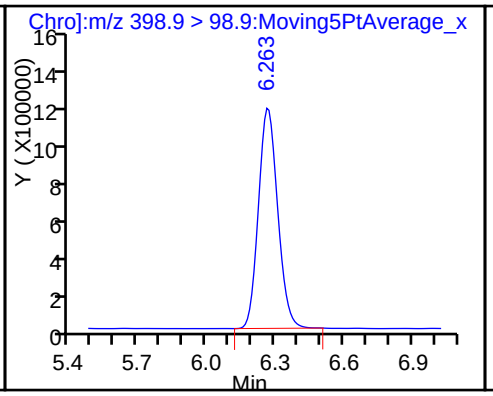
10 Perfluorohexane Sulfonate



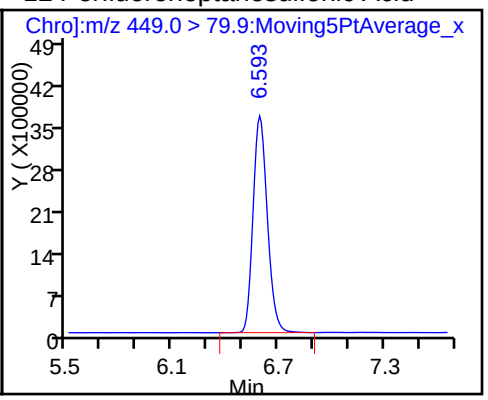
11 Perfluorohexanesulfonic acid



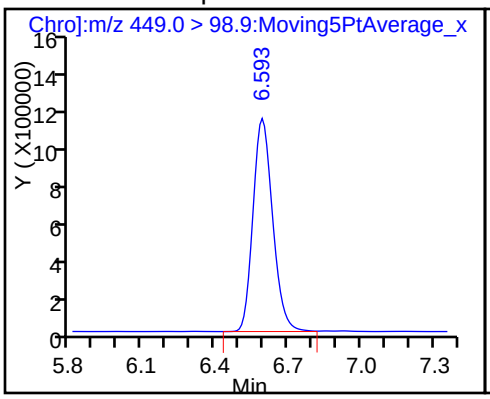
11 Perfluorohexanesulfonic acid



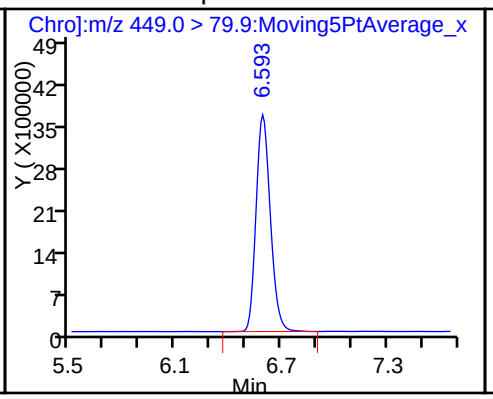
12 Perfluoroheptanesulfonic Acid



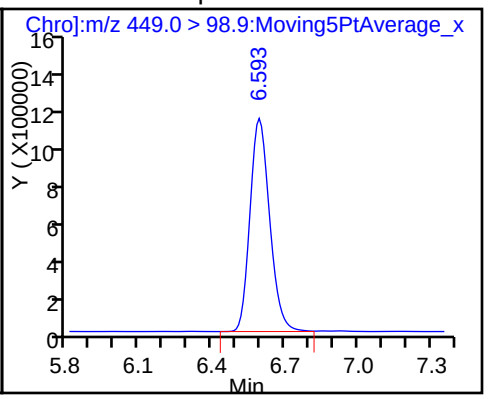
12 Perfluoroheptanesulfonic Acid



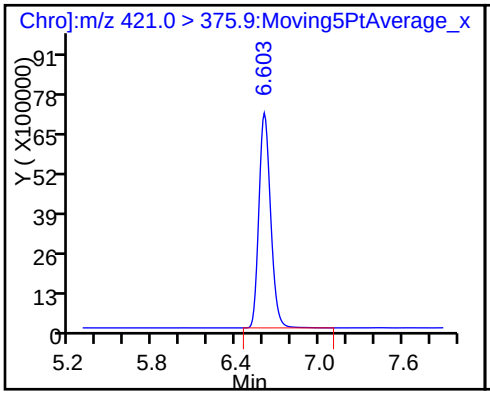
13 Perfluoroheptane Sulfonate



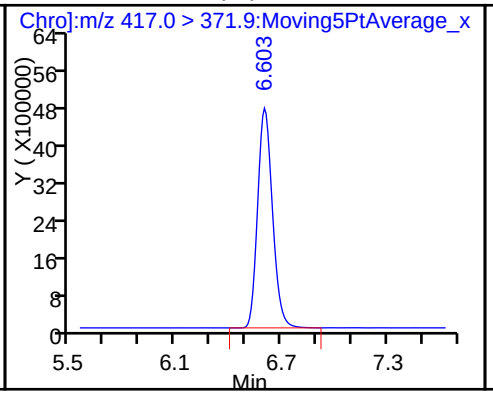
13 Perfluoroheptane Sulfonate



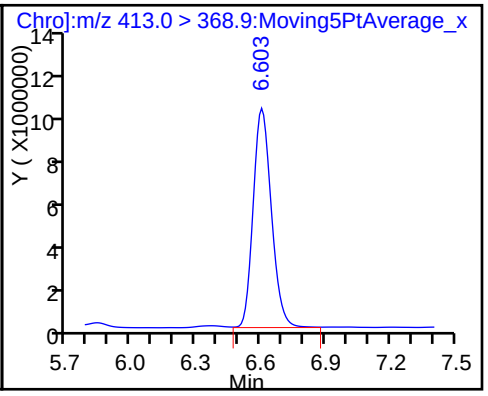
$ 14 13C8 PFOA



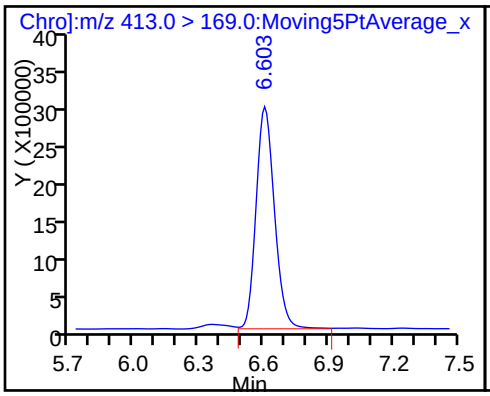
* 15 13C4 PFOA (IS)



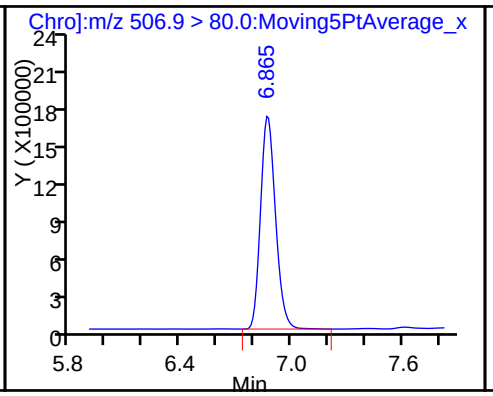
16 Perfluorooctanoic acid



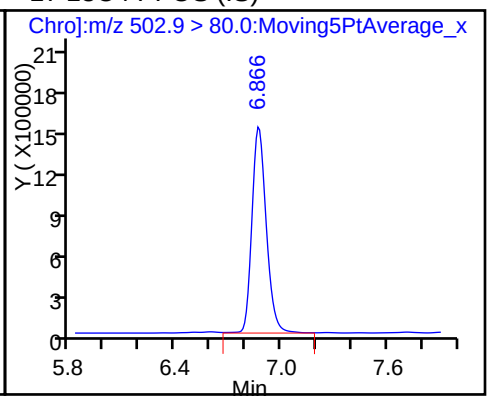
16 Perfluorooctanoic acid



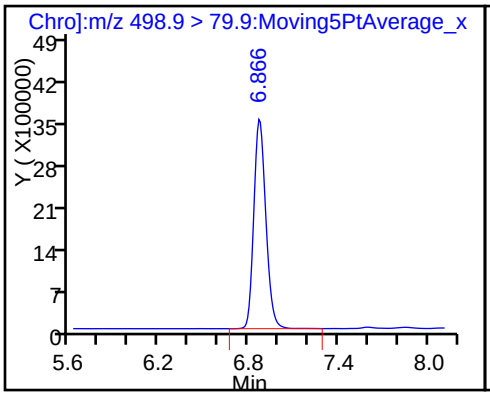
$ 18 13C8 PFOS



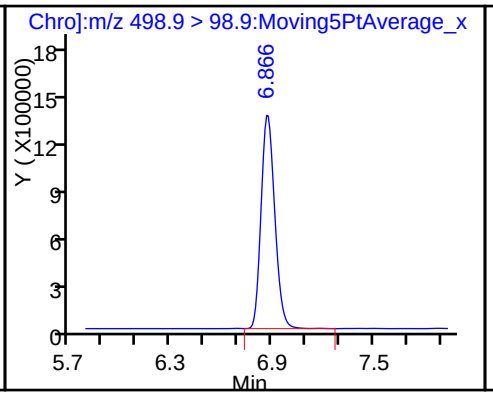
* 17 13C4 PFOS (IS)



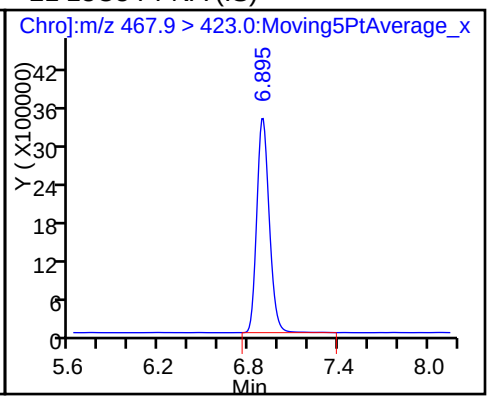
19 Perfluorooctane sulfonic acid



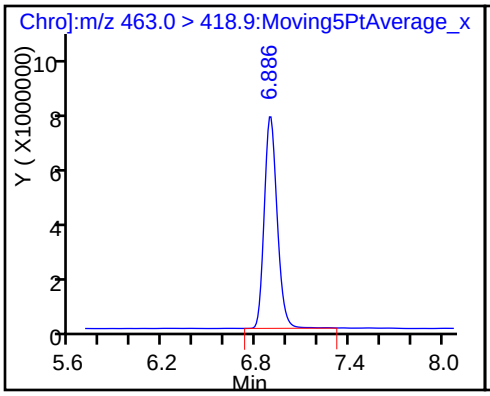
19 Perfluorooctane sulfonic acid



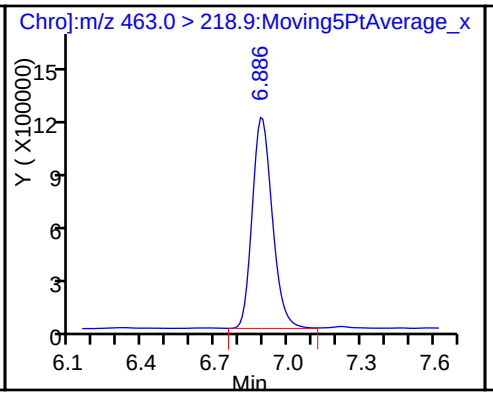
* 21 13C5 PFNA (IS)



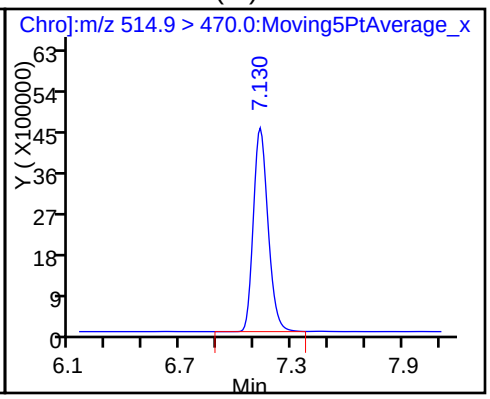
20 Perfluorononanoic acid



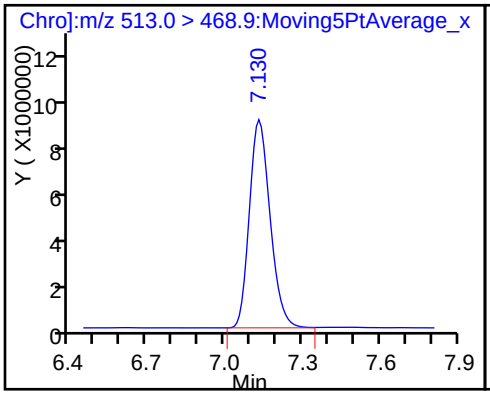
20 Perfluorononanoic acid



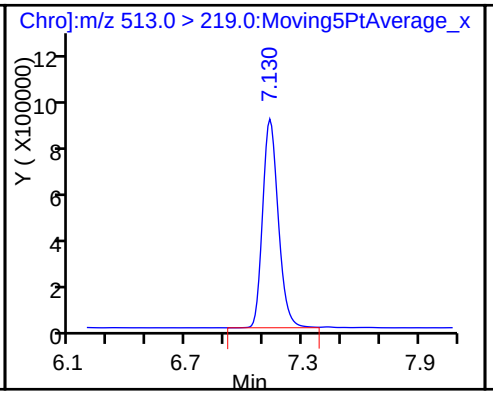
* 22 13C2 PFDA (IS)



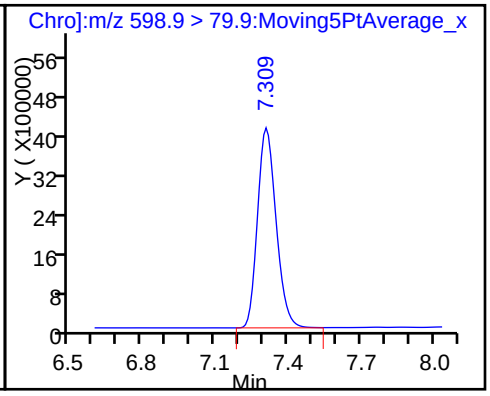
23 Perfluorodecanoic acid



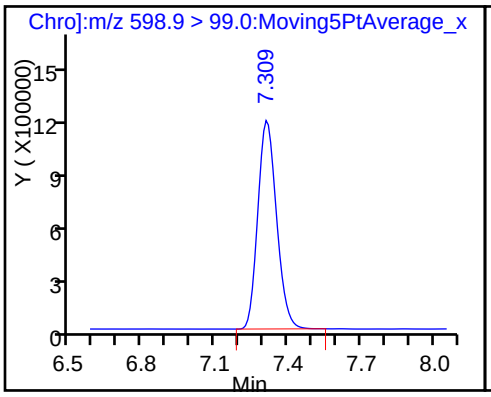
23 Perfluorodecanoic acid



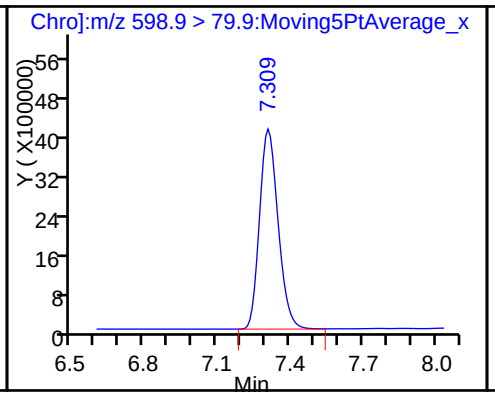
24 Perfluorodecane Sulfonic acid



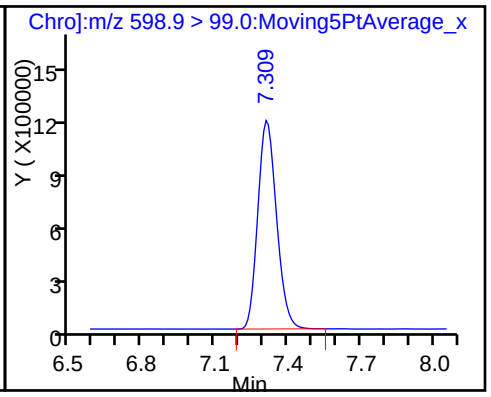
24 Perfluorodecane Sulfonic acid



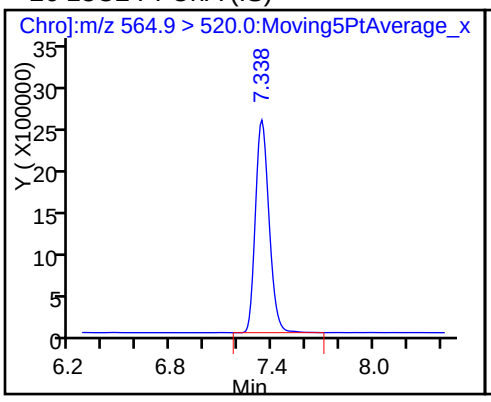
25 Perfluorodecane Sulfonate



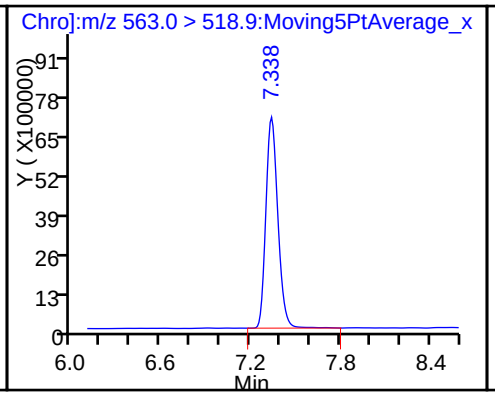
25 Perfluorodecane Sulfonate



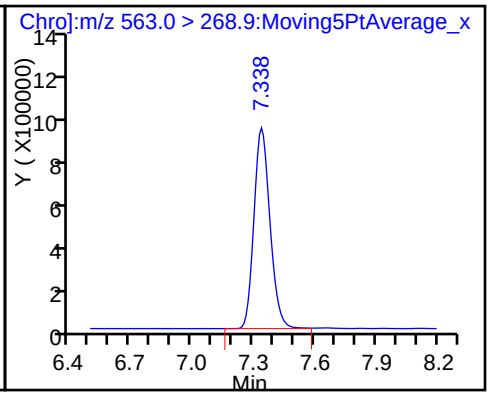
* 26 13C2 PFUnA (IS)



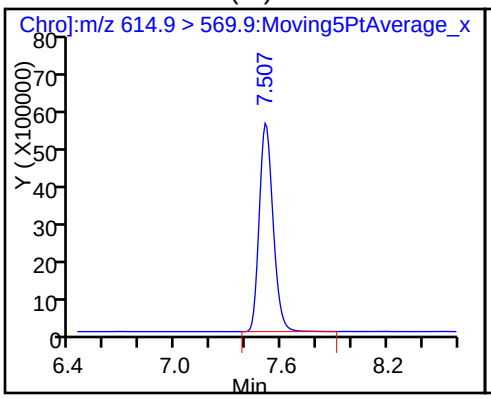
27 Perfluoroundecanoic acid



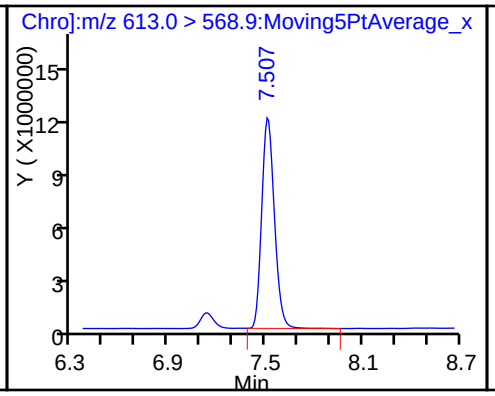
27 Perfluoroundecanoic acid



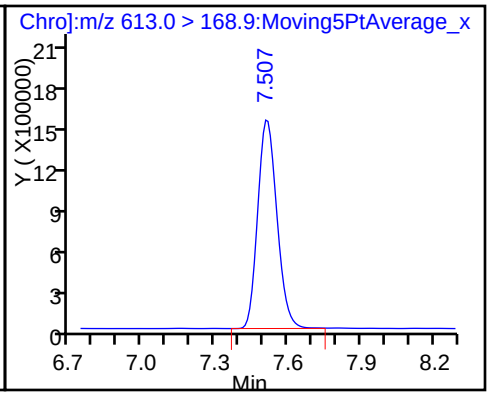
* 28 13C2 PFDoA (IS)



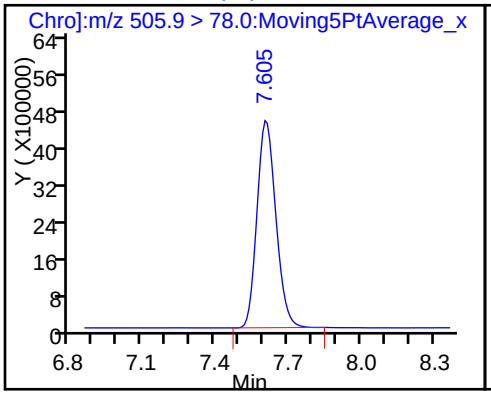
29 Perfluorododecanoic acid



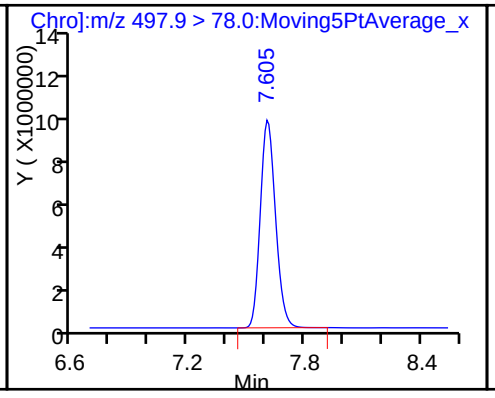
29 Perfluorododecanoic acid



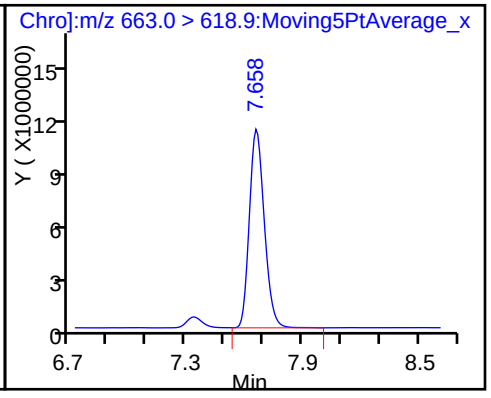
* 31 13C8 FOSA (IS)



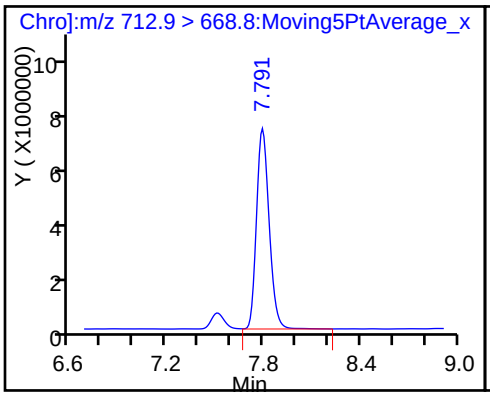
32 Perfluorooctane Sulfonamide



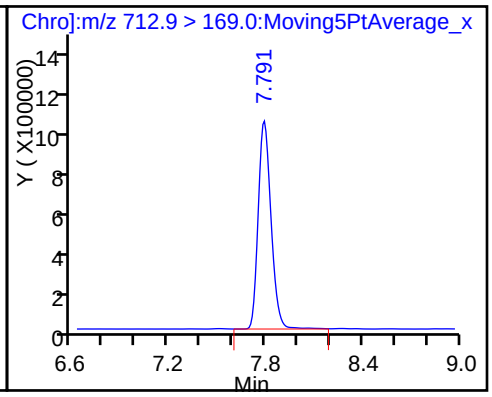
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



Manual Integration/User Assign Peak Report

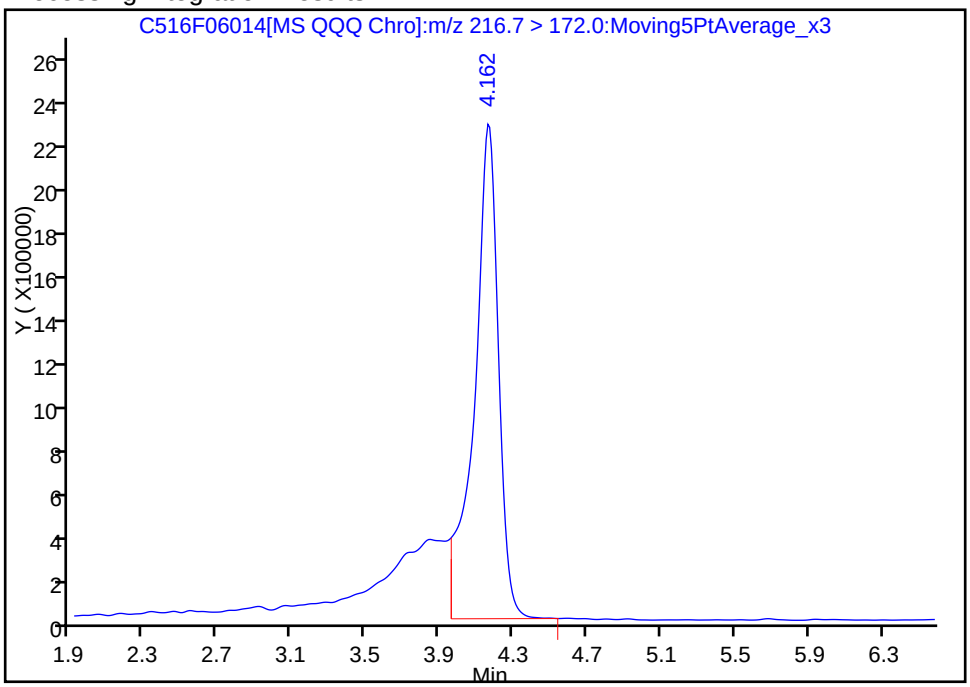
TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06014.d
Injection Date: 06-Jun-2016 16:03:46 Instrument ID: LC_LCMS5
Lims ID: STD0200
Client ID:
Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 9
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Method: 8321_PFC Limit Group: LC - PFC
Column: Detector MS QQQ

* 1 13C4 PFBA (IS), CAS: STL01003

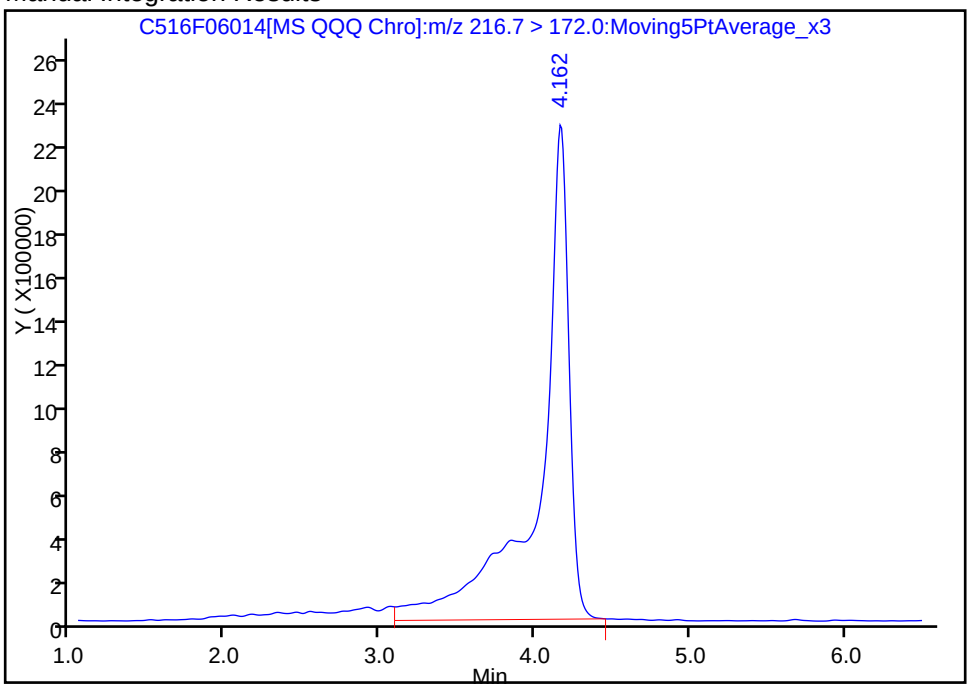
Processing Integration Results

RT: 4.16
Area: 19722665
Amount: 10.000000
Amount Units: ug/L



Manual Integration Results

RT: 4.16
Area: 29015390
Amount: 10.000000
Amount Units: ug/L



Reviewer: meyera, 07-Jun-2016 12:57:55
Audit Action: Manually Integrated
Audit Reason: Baseline

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06015.d
Lims ID: STD0500
Client ID:
Sample Type: IC Calib Level: 8
Inject. Date: 06-Jun-2016 16:16:04 ALS Bottle#: 0 Worklist Smp#: 10
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: STD 0500, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 07-Jun-2016 14:09:17 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK003

First Level Reviewer: meyera Date: 07-Jun-2016 12:58:12

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.162	4.162	0.0		28899590	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	4.162	4.162	0.0	1.000	157344591	50.7			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.232	5.232	0.0	0.898	120508960	51.5			
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.355	5.364	-0.009	0.855	52661159	46.7			
298.9 > 98.9	5.355	5.364	-0.009	0.855	15734279		3.35(2.57-2.57)		
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.355	5.364	-0.009	0.855	52661159	46.7			
298.9 > 98.9	5.355	5.364	-0.009	0.855	15734279		3.35(1.80-3.35)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.828	5.818	0.010		19918903	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.828	5.819	0.009	1.000	92031312	48.9			
313.0 > 118.6	5.819	5.819	0.0	0.998	2416833		38.08(34.05-63.23)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.254	6.244	0.010	0.948	102889489	48.9			
363.0 > 168.9	6.254	6.244	0.010	0.948	26954929		3.82(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.263	6.253	0.010		2040676	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.263	6.253	0.010	1.000	37926174	45.7			R
398.9 > 98.9	6.263	6.253	0.010	1.000	13830962		2.74(1.30-2.41)		
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.263	6.253	0.010	1.000	37926174	45.7			
398.9 > 98.9	6.263	6.253	0.010	1.000	13830962		2.74(1.85-1.85)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.583	6.583	0.0	0.959	43315154	47.2			
449.0 > 98.9	6.583	6.583	0.0	0.959	13564341		3.19(0.00-0.00)		
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.583	6.583	0.0	0.959	43315154	47.2			
449.0 > 98.9	6.583	6.583	0.0	0.959	13564341		3.19(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.593	6.593	0.0	1.000	85046612	43.5			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.593	6.593	0.0		24245688	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.594	6.594	0.0	1.000	118077119	47.0			
413.0 > 169.0	6.594	6.594	0.0	1.000	34953467		3.38(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.865	6.865	0.0	1.000	19830288	43.0			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.866	6.866	0.0		7235826	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.866	6.866	0.0	1.000	40197453	45.6			R
498.9 > 98.9	6.866	6.866	0.0	1.000	14750225		2.73(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.886	6.886	0.0		16026593	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.886	6.886	0.0	1.000	90947910	50.8			
463.0 > 218.9	6.886	6.886	0.0	1.000	13125494		6.93(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.121	7.130	-0.009		21729944	10.0			
23 Perfluorodecanoic acid									
513.0 > 468.9	7.121	7.130	-0.009	1.000	109010928	49.9			
513.0 > 219.0	7.121	7.130	-0.009	1.000	10212681		10.67(10.49-19.48)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.309	7.318	-0.009	1.065	47343835	50.7			
598.9 > 99.0	7.309	7.318	-0.009	1.065	13810385		3.43(2.84-2.84)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.309	7.318	-0.009	1.065	47343835	50.7			
598.9 > 99.0	7.309	7.318	-0.009	1.065	13810385		3.43(1.99-3.69)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.338	7.347	-0.009		11601224	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.338	7.347	-0.009	1.000	77899378	47.6			R
563.0 > 268.9	7.338	7.347	-0.009	1.000	9857109		7.90(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.507	7.517	-0.010		28794485	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.507	7.517	-0.010	1.000	142077526	48.2			
613.0 > 168.9	7.507	7.517	-0.010	1.000	18271384		7.78(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.605	7.614	-0.009		21576040	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.605	7.615	-0.010	1.000	117575149	50.2			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.658	7.668	-0.010	1.020	121132497	45.5			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.791	7.800	-0.009	1.038	88331768	51.9			
712.9 > 169.0	7.791	7.800	-0.009	1.038	13420452		6.58(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Reagents:

PFC-LCS_00078	Amount Added: 100.00	Units: uL
PFC-IS_00021	Amount Added: 20.00	Units: uL
PFC_Surr_00021	Amount Added: 100.00	Units: uL

Report Date: 07-Jun-2016 14:09:18 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06015.d

Injection Date: 06-Jun-2016 16:16:04 Instrument ID: LC_LCMS5

Lims ID: STD0500

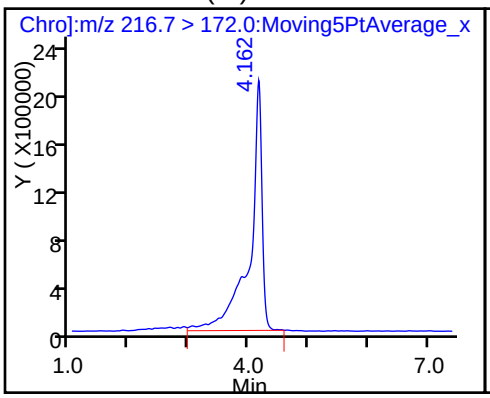
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 10

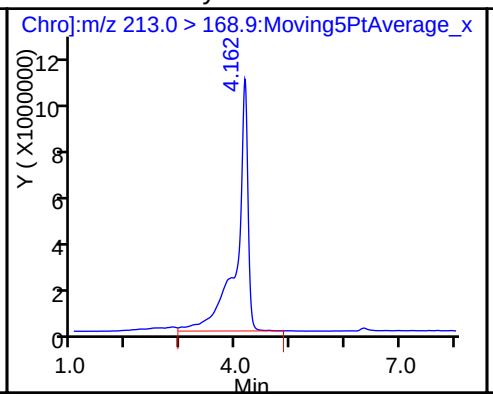
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

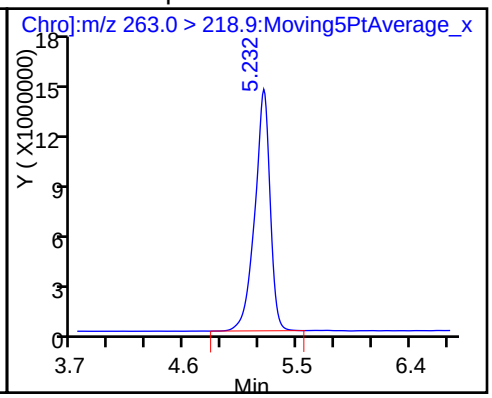
* 1 13C4 PFBA (IS)



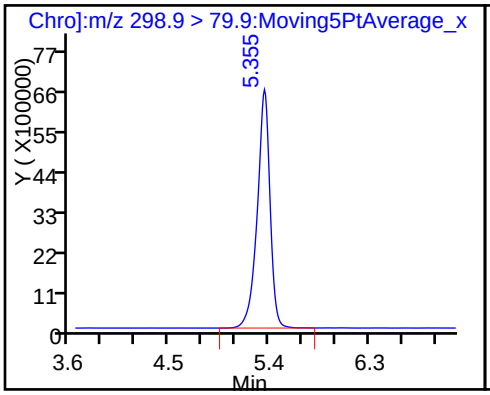
2 Perfluorobutyric acid



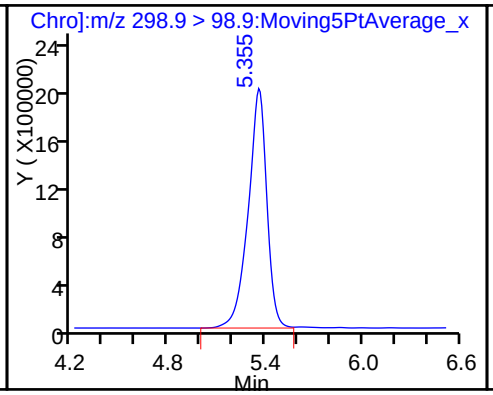
3 Perfluoropentanoic acid



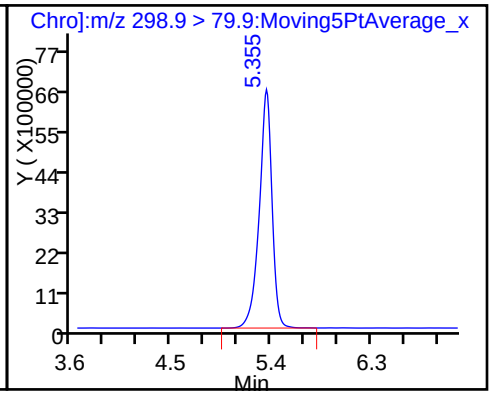
5 Perfluorobutanesulfonic acid



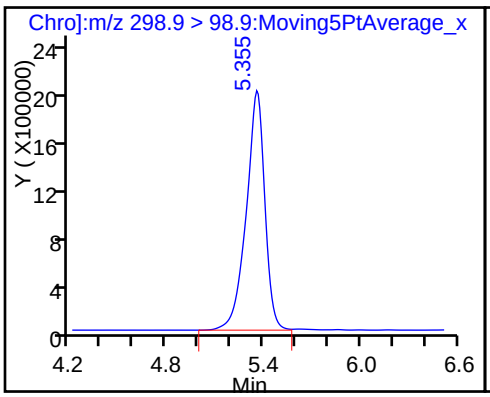
5 Perfluorobutanesulfonic acid



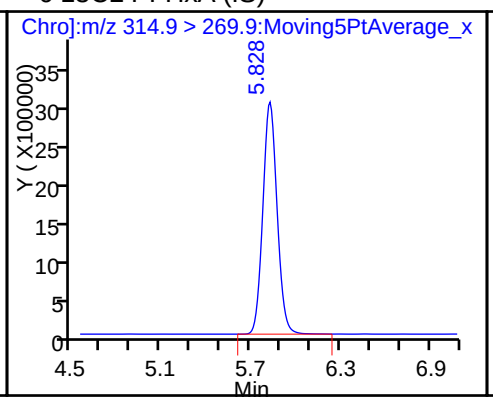
4 Perfluorobutane Sulfonate



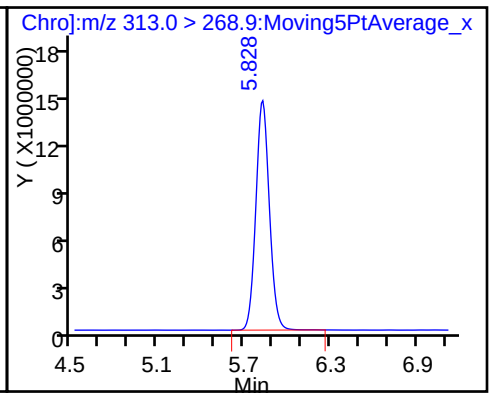
4 Perfluorobutane Sulfonate



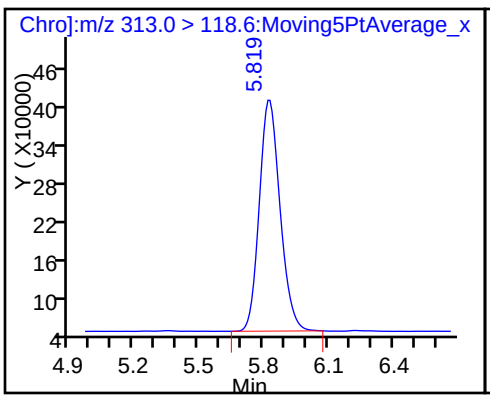
* 6 13C2 PFHxA (IS)



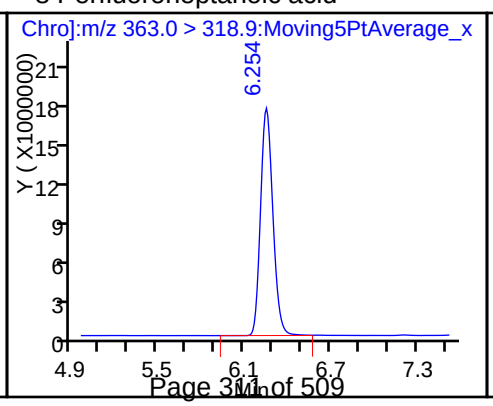
7 Perfluorohexanoic acid



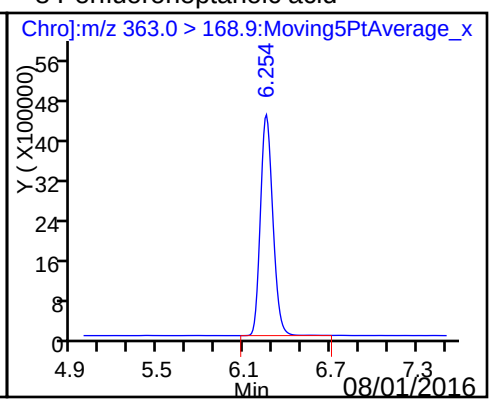
7 Perfluorohexanoic acid



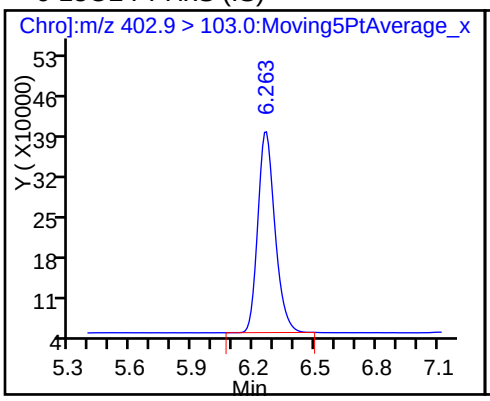
8 Perfluoroheptanoic acid



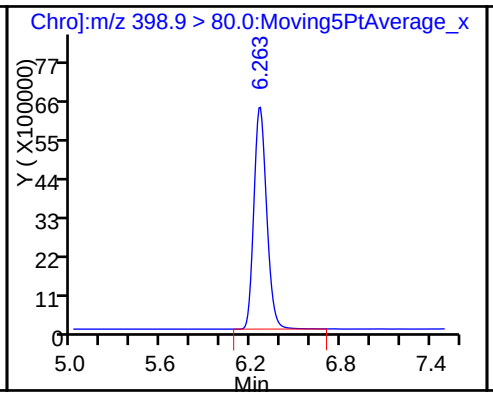
8 Perfluoroheptanoic acid



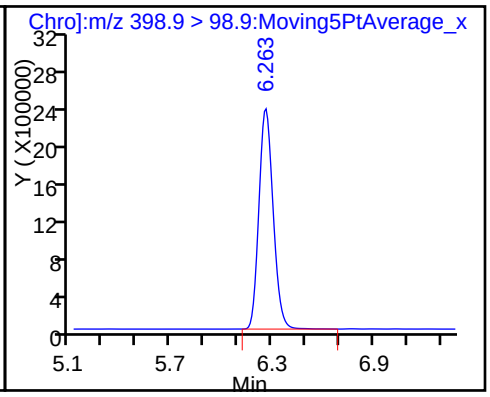
* 9 18O2 PFHxS (IS)



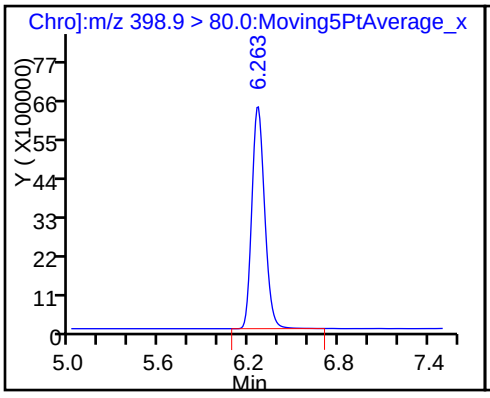
10 Perfluorohexane Sulfonate



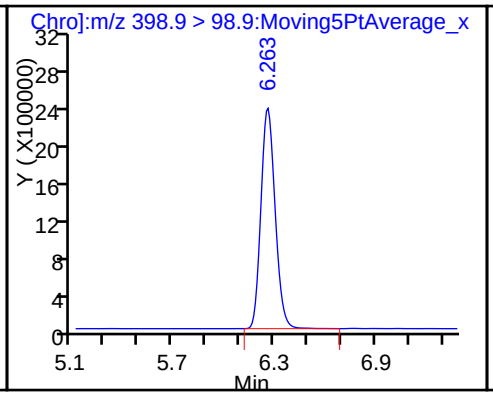
10 Perfluorohexane Sulfonate



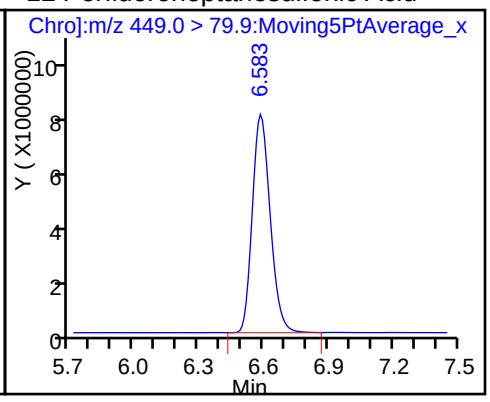
11 Perfluorohexanesulfonic acid



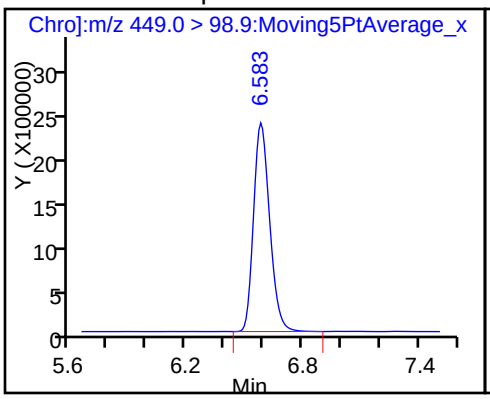
11 Perfluorohexanesulfonic acid



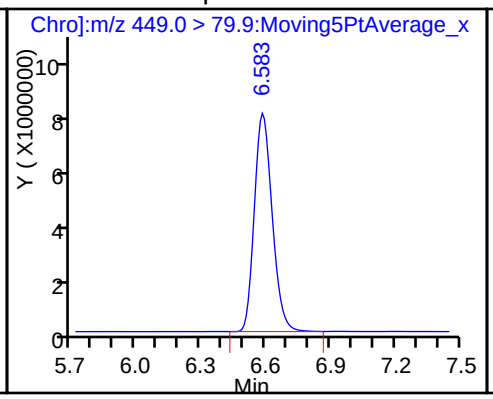
12 Perfluoroheptanesulfonic Acid



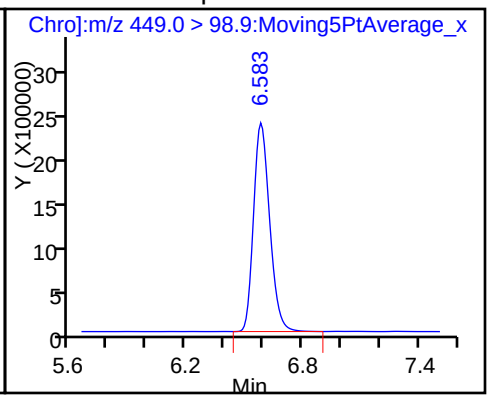
12 Perfluoroheptanesulfonic Acid



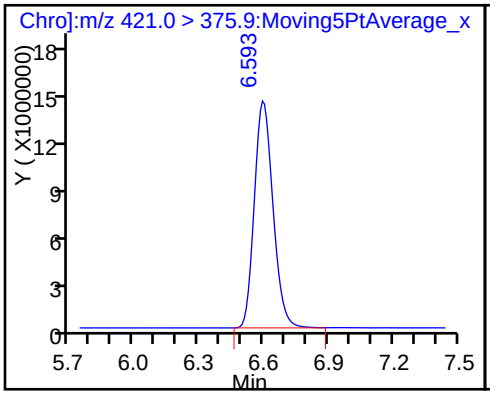
13 Perfluoroheptane Sulfonate



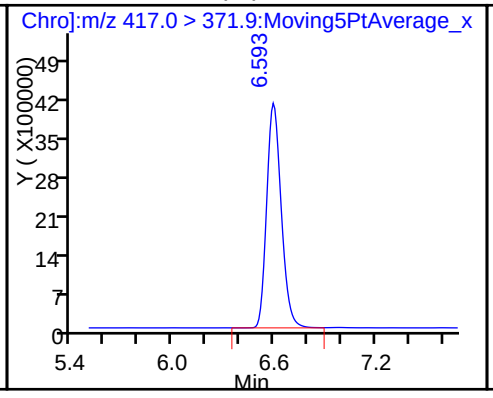
13 Perfluoroheptane Sulfonate



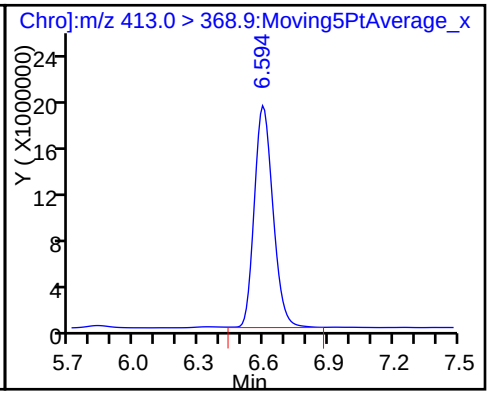
$ 14 13C8 PFOA



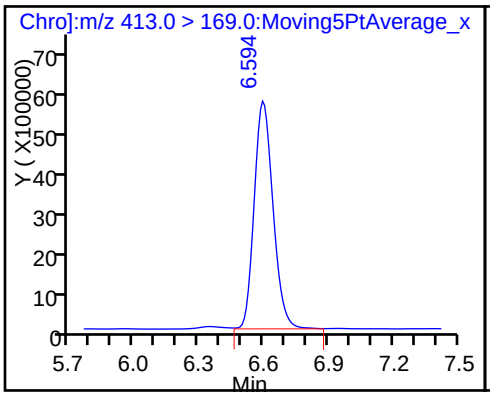
* 15 13C4 PFOA (IS)



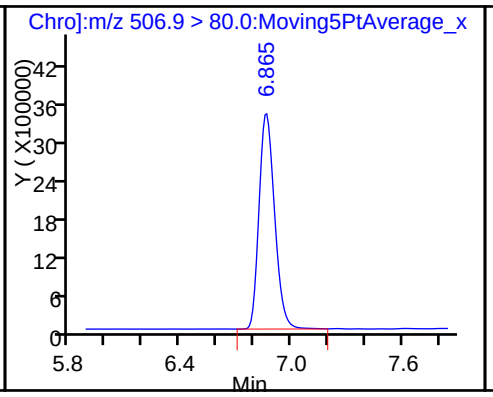
16 Perfluorooctanoic acid



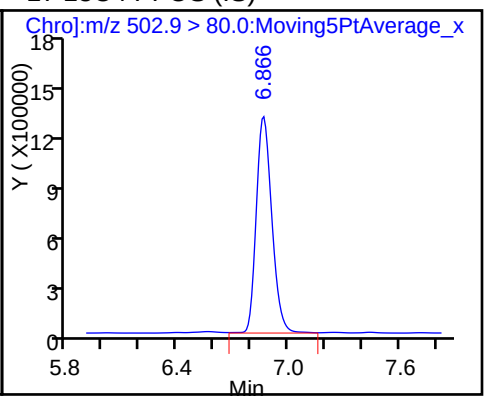
16 Perfluorooctanoic acid



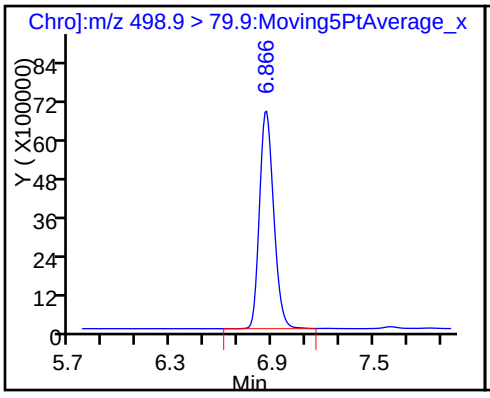
$ 18 13C8 PFOS



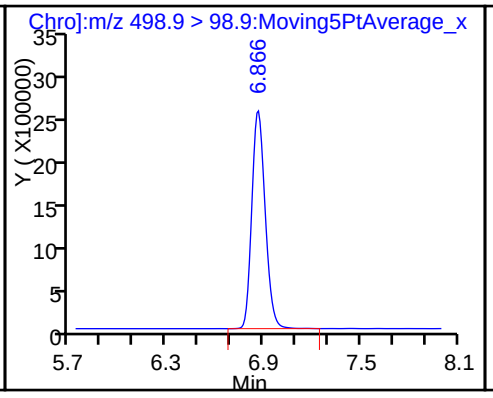
* 17 13C4 PFOS (IS)



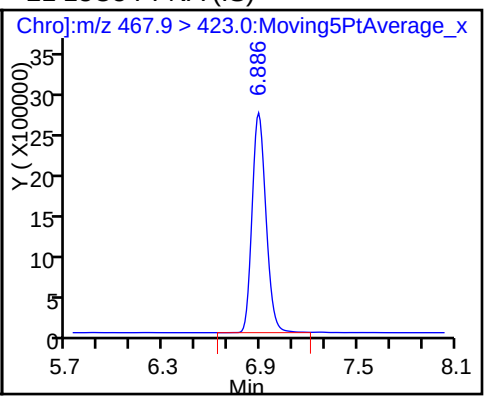
19 Perfluorooctane sulfonic acid



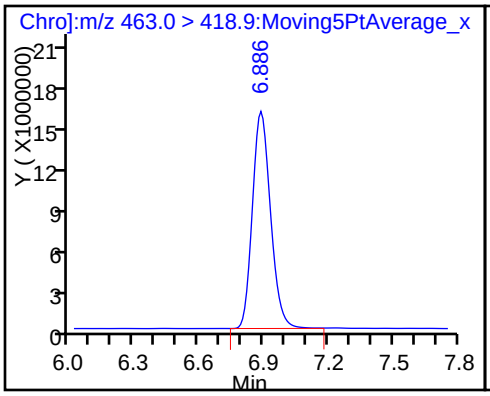
19 Perfluorooctane sulfonic acid



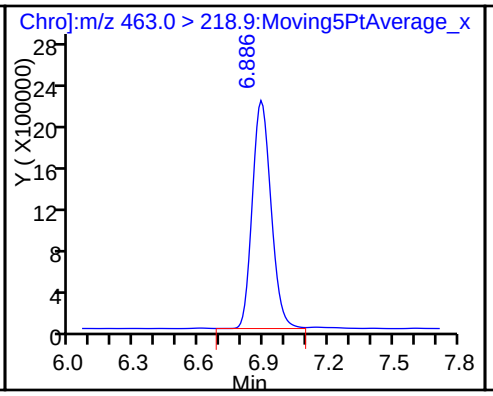
* 21 13C5 PFNA (IS)



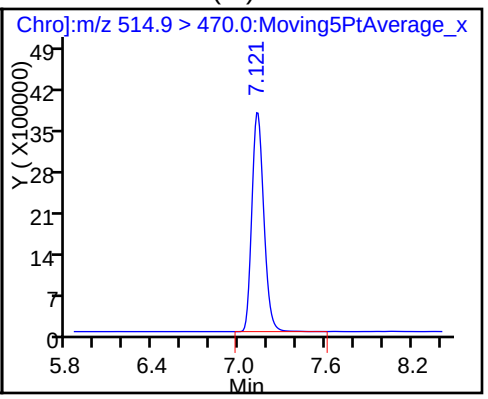
20 Perfluorononanoic acid



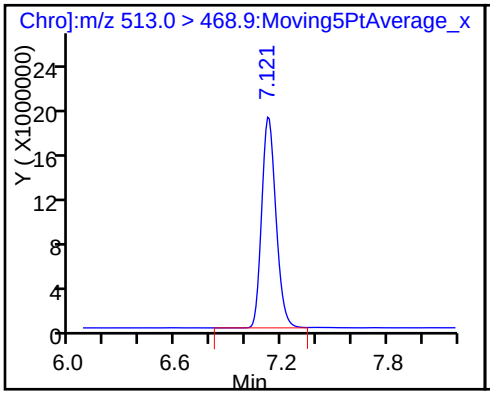
20 Perfluorononanoic acid



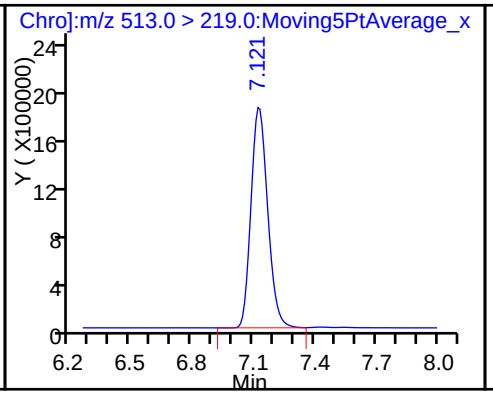
* 22 13C2 PFDA (IS)



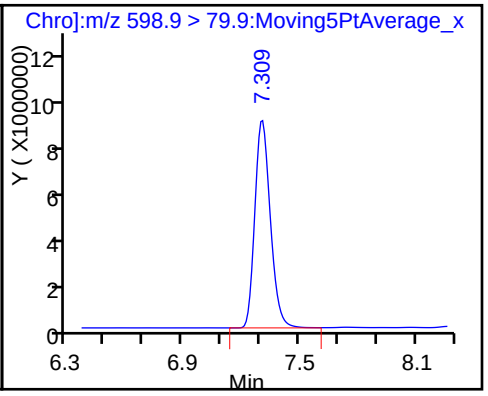
23 Perfluorodecanoic acid



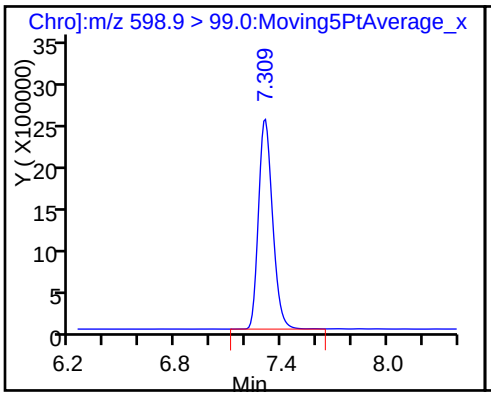
23 Perfluorodecanoic acid



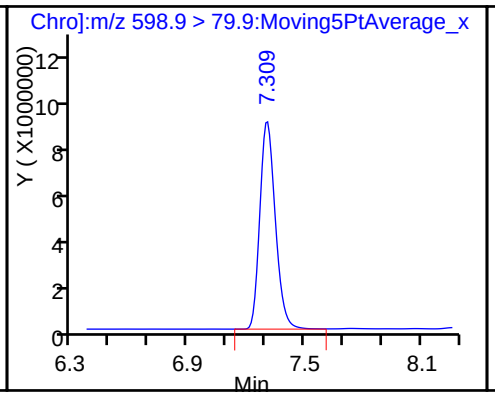
24 Perfluorodecane Sulfonic acid



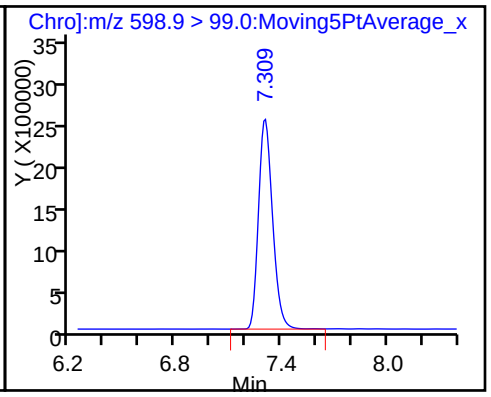
24 Perfluorodecane Sulfonic acid



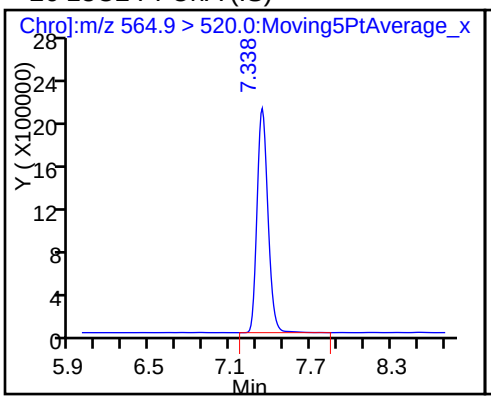
25 Perfluorodecane Sulfonate



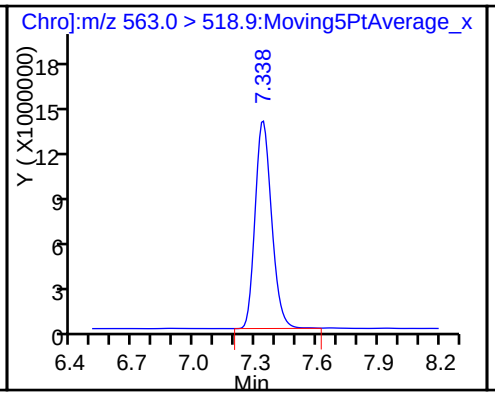
25 Perfluorodecane Sulfonate



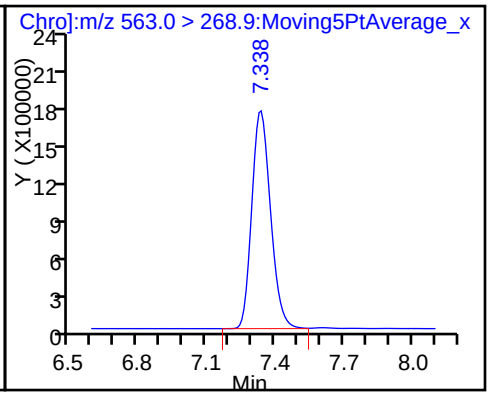
* 26 13C2 PFUnA (IS)



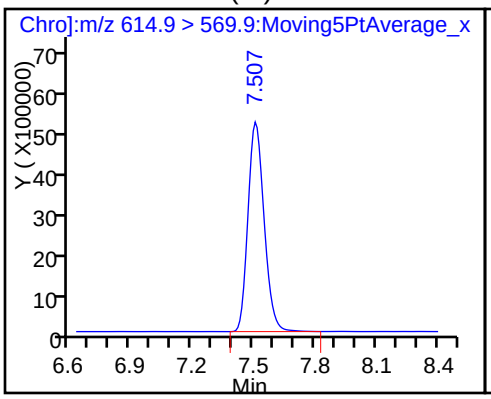
27 Perfluoroundecanoic acid



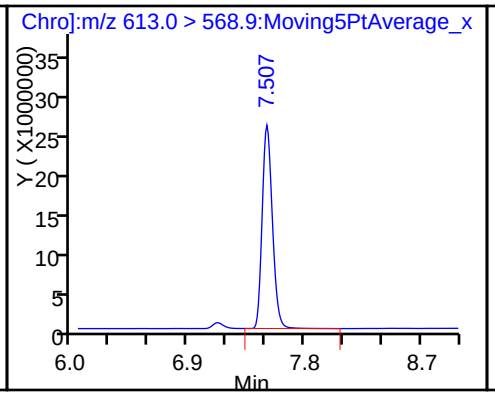
27 Perfluoroundecanoic acid



* 28 13C2 PFDoA (IS)



29 Perfluorododecanoic acid



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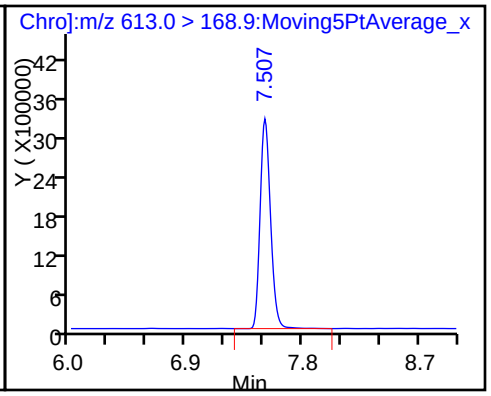
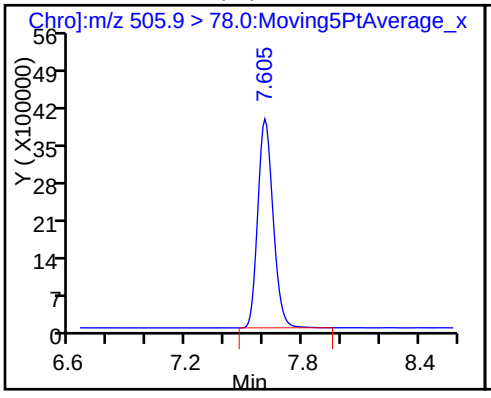
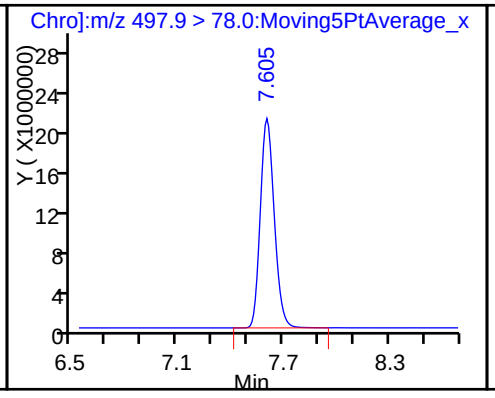


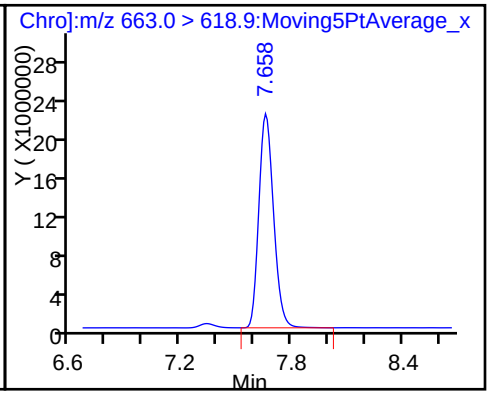
* 31 13C8 FOSA (IS)



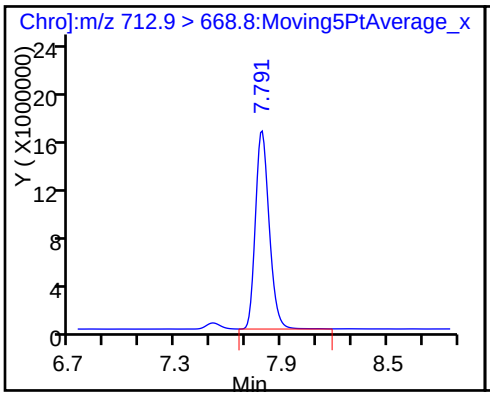
32 Perfluorooctane Sulfonamide



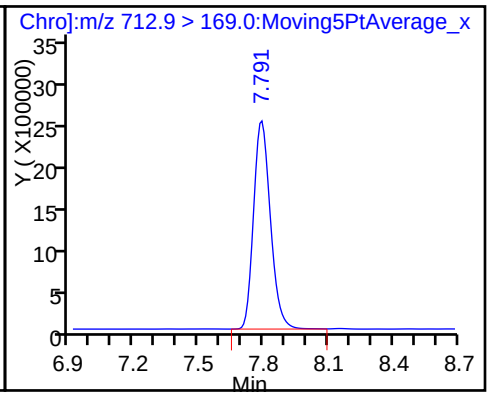
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d
Lims ID: STD1250
Client ID:
Sample Type: IC Calib Level: 9
Inject. Date: 06-Jun-2016 16:28:22 ALS Bottle#: 0 Worklist Smp#: 11
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: STD 1250, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 07-Jun-2016 14:09:24 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK003

First Level Reviewer: meyera Date: 07-Jun-2016 12:58:30

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.162	4.162	0.0		28007845	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	4.162	4.162	0.0	1.000	394160471	131.2			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.232	5.232	0.0	0.899	255912628	126.3			
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.355	5.364	-0.009	0.856	113831493	126.6			
298.9 > 98.9	5.355	5.364	-0.009	0.856	33531607		3.39(2.57-2.57)		
4 Perfluorobutane Sulfonate									R
298.9 > 79.9	5.355	5.364	-0.009	0.856	113831493	126.6			R
298.9 > 98.9	5.355	5.364	-0.009	0.856	33531607		3.39(1.80-3.35)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.818	5.818	0.0		17267639	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.819	5.819	0.0	1.000	196806552	120.8			
313.0 > 118.6	5.819	5.819	0.0	1.000	5432175		36.23(34.05-63.23)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.244	6.244	0.0	0.947	201805611	119.2			
363.0 > 168.9	6.244	6.244	0.0	0.947	53021334		3.81(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.253	6.253	0.0		1627148	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.253	6.253	0.0	1.000	77830813	117.9			R
398.9 > 98.9	6.253	6.253	0.0	1.000	26968813		2.89(1.30-2.41)		
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.253	6.253	0.0	1.000	77830813	117.9			
398.9 > 98.9	6.253	6.253	0.0	1.000	26968813		2.89(1.85-1.85)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.574	6.583	-0.009	0.959	81786282	103.6			
449.0 > 98.9	6.574	6.583	-0.009	0.959	25958942		3.15(0.00-0.00)		
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.574	6.583	-0.009	0.959	81786282	103.6			
449.0 > 98.9	6.574	6.583	-0.009	0.959	25958942		3.15(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.584	6.593	-0.009	0.999	162199054	103.2			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.593	6.593	0.0		19521527	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.584	6.594	-0.010	0.999	220819164	109.3			
413.0 > 169.0	6.594	6.594	0.0	1.000	64227565		3.44(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.856	6.865	-0.009	1.000	36728856	92.6			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.856	6.866	-0.010		6220431	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.857	6.866	-0.009	1.000	74481235	98.3			R
498.9 > 98.9	6.857	6.866	-0.009	1.000	26876105		2.77(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.876	6.886	-0.010		11951584	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.877	6.886	-0.010	1.000	168854641	126.5			
463.0 > 218.9	6.877	6.886	-0.010	1.000	25008074		6.75(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.121	7.130	-0.009		17676292	10.0			
23 Perfluorodecanoic acid									R
513.0 > 468.9	7.121	7.130	-0.009	1.000	219177035	123.5			R
513.0 > 219.0	7.121	7.130	-0.009	1.000	21075182		10.40(10.49-19.48)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.299	7.318	-0.019	1.065	90907790	113.4			
598.9 > 99.0	7.299	7.318	-0.019	1.065	27106961		3.35(2.84-2.84)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.299	7.318	-0.019	1.065	90907790	113.4			
598.9 > 99.0	7.299	7.318	-0.019	1.065	27106961		3.35(1.99-3.69)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.328	7.347	-0.019		8840302	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.329	7.347	-0.019	1.000	154032440	123.5			R
563.0 > 268.9	7.329	7.347	-0.019	1.000	19397481		7.94(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.498	7.517	-0.019		23005975	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.498	7.517	-0.019	1.000	293807930	125.0			
613.0 > 168.9	7.498	7.517	-0.019	1.000	37965617		7.74(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.595	7.614	-0.019		18054962	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.596	7.615	-0.019	1.000	250150013	127.7			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.649	7.668	-0.019	1.020	254423900	119.8			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.781	7.800	-0.019	1.038	191754560	141.1			
712.9 > 169.0	7.781	7.800	-0.019	1.038	27998880		6.85(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Reagents:

PFC-LCS_00078	Amount Added: 250.00	Units: uL
PFC-IS_00021	Amount Added: 20.00	Units: uL
PFC_Surr_00021	Amount Added: 250.00	Units: uL

Report Date: 07-Jun-2016 14:09:24 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Injection Date: 06-Jun-2016 16:28:22 Instrument ID: LC_LCMS5

Lims ID: STD1250

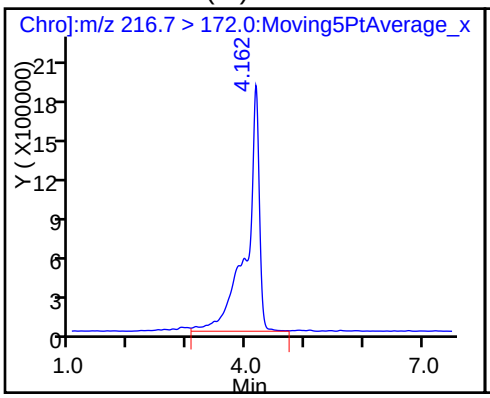
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 11

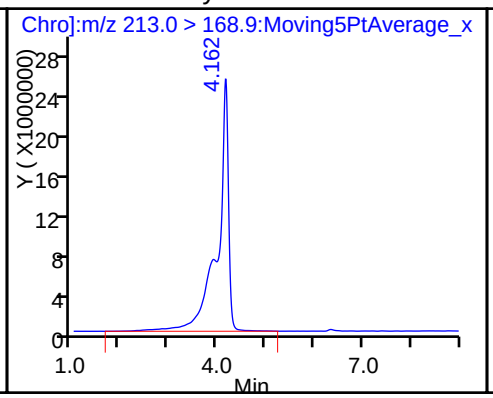
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

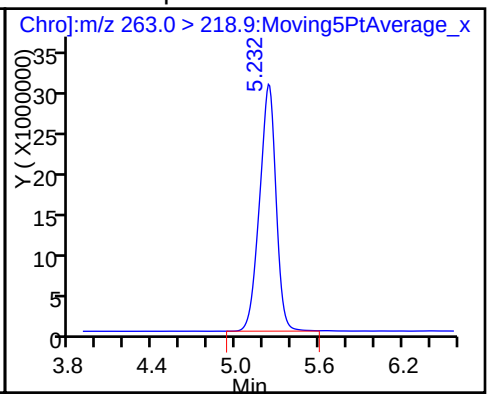
* 1 13C4 PFBA (IS)



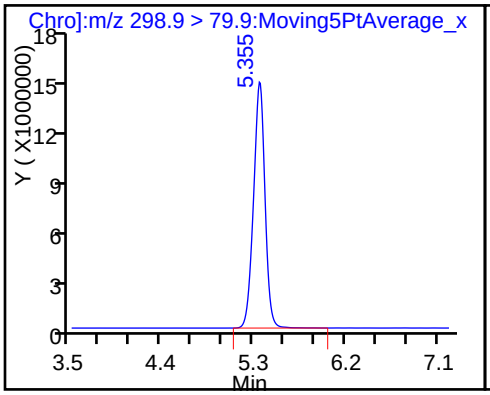
2 Perfluorobutyric acid



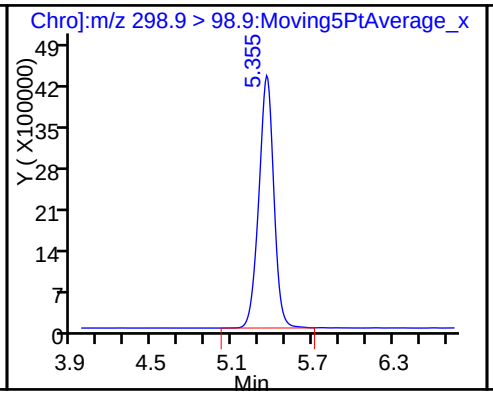
3 Perfluoropentanoic acid



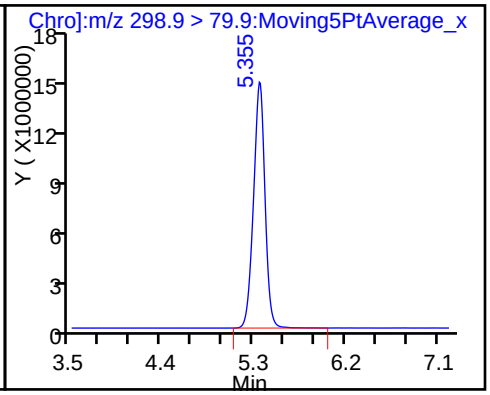
5 Perfluorobutanesulfonic acid



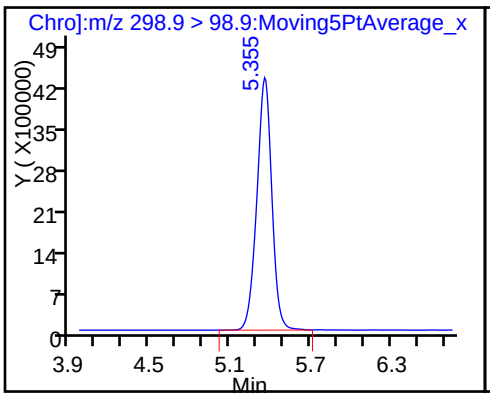
5 Perfluorobutanesulfonic acid



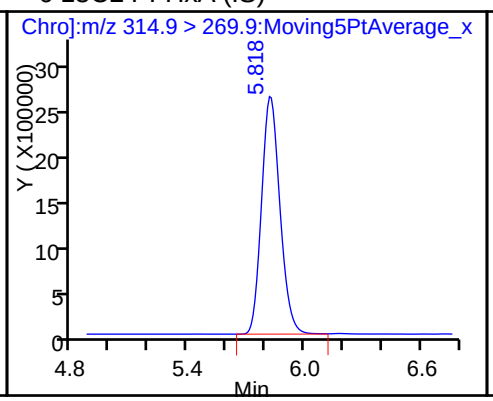
4 Perfluorobutane Sulfonate



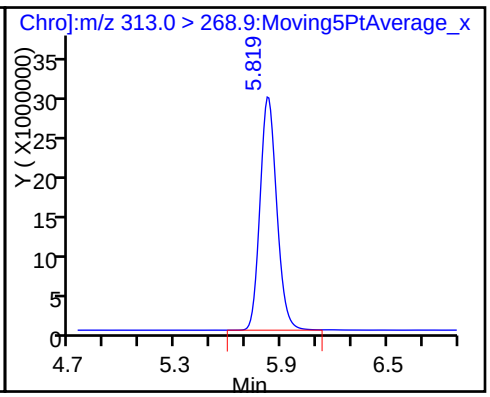
4 Perfluorobutane Sulfonate



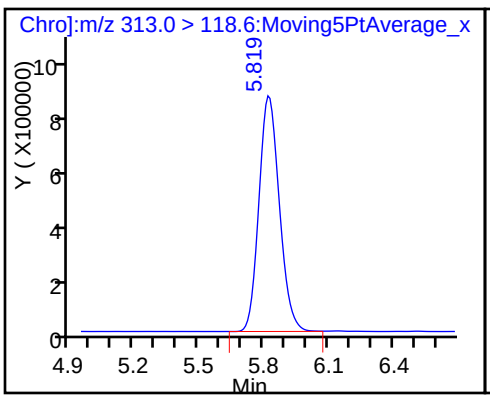
* 6 13C2 PFHxA (IS)



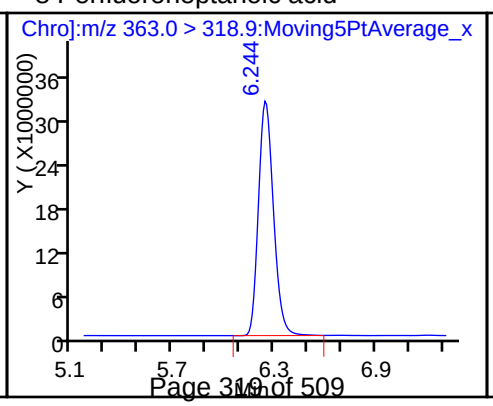
7 Perfluorohexanoic acid



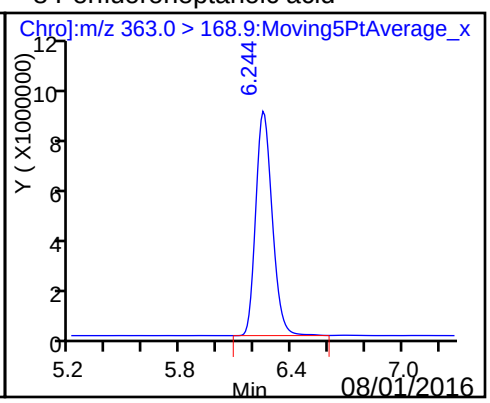
7 Perfluorohexanoic acid



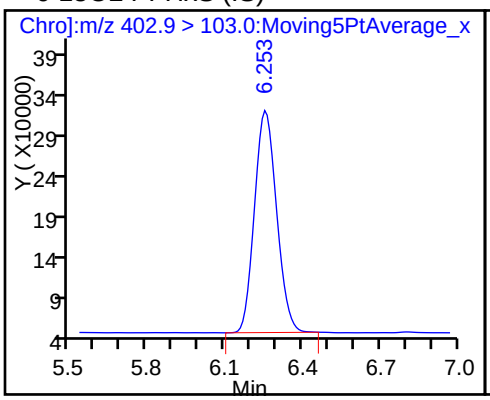
8 Perfluoroheptanoic acid



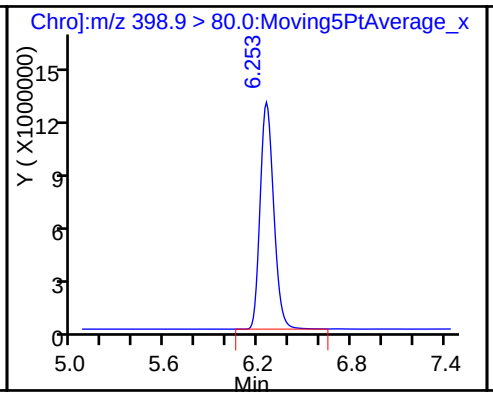
8 Perfluoroheptanoic acid



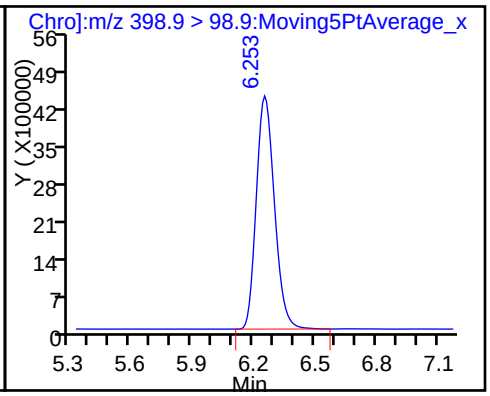
* 9 18O2 PFHxS (IS)



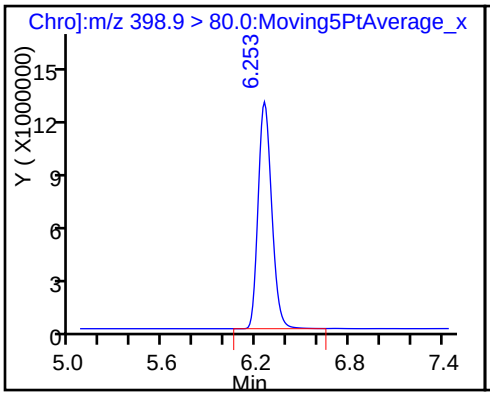
10 Perfluorohexane Sulfonate



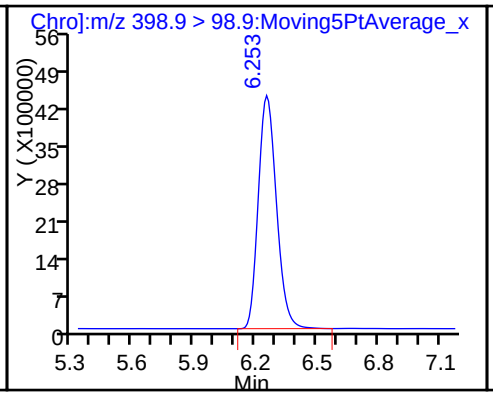
10 Perfluorohexane Sulfonate



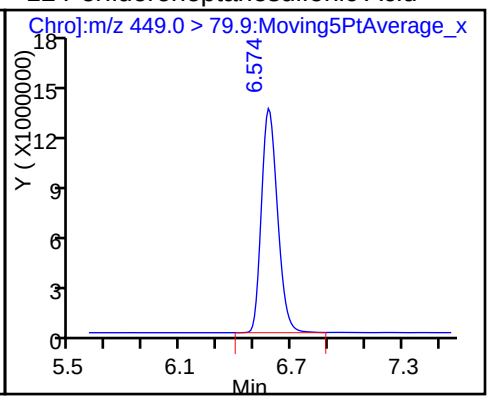
11 Perfluorohexanesulfonic acid



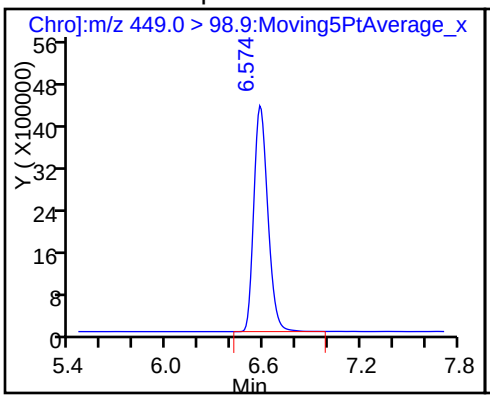
11 Perfluorohexanesulfonic acid



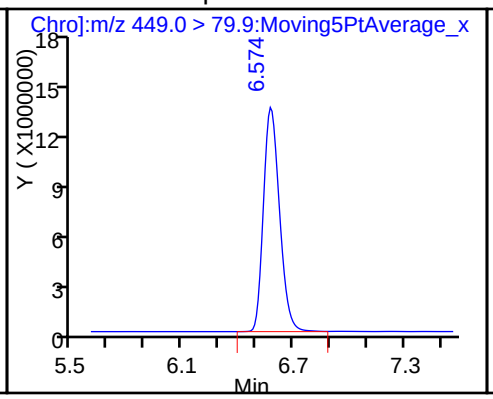
12 Perfluoroheptanesulfonic Acid



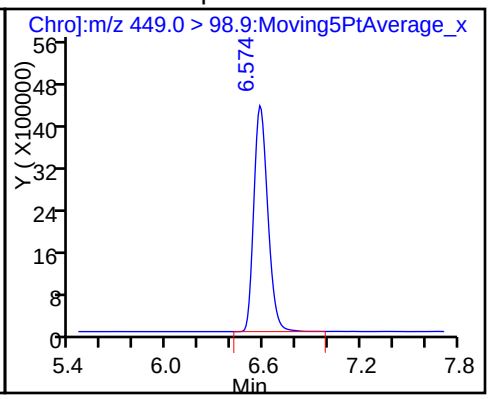
12 Perfluoroheptanesulfonic Acid



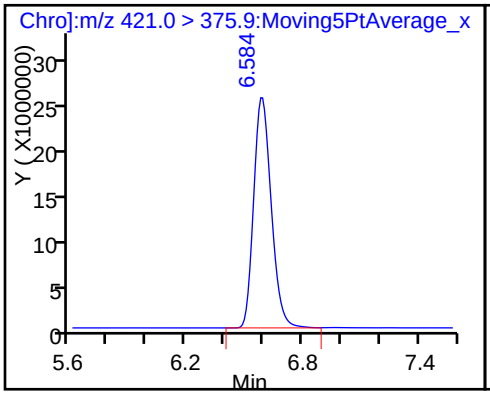
13 Perfluoroheptane Sulfonate



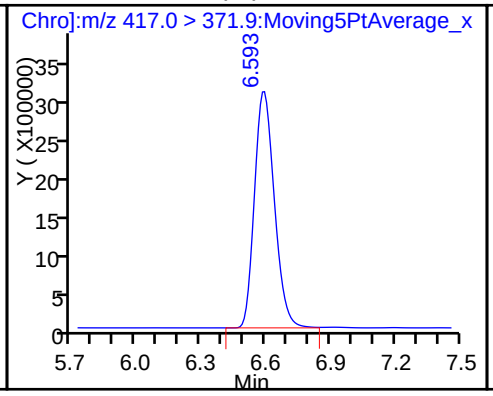
13 Perfluoroheptane Sulfonate



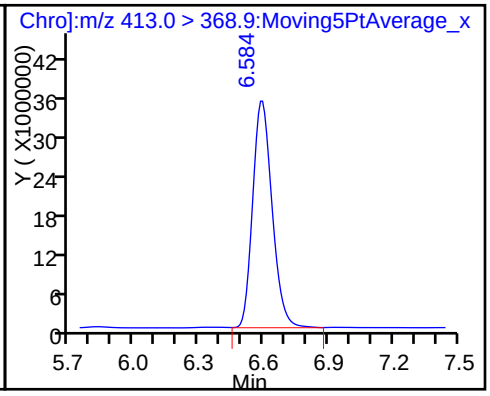
$ 14 13C8 PFOA



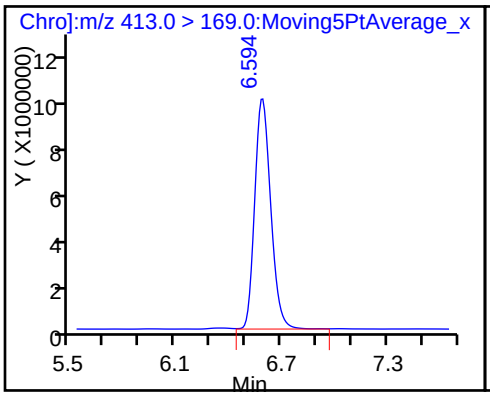
* 15 13C4 PFOA (IS)



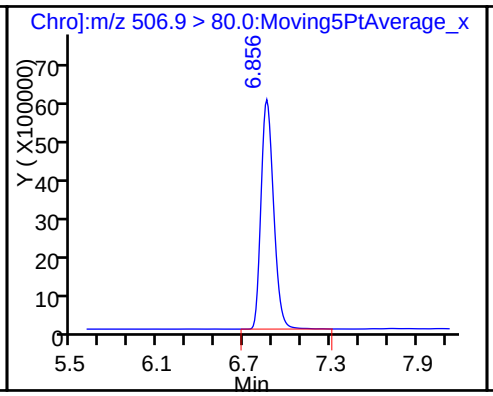
16 Perfluorooctanoic acid



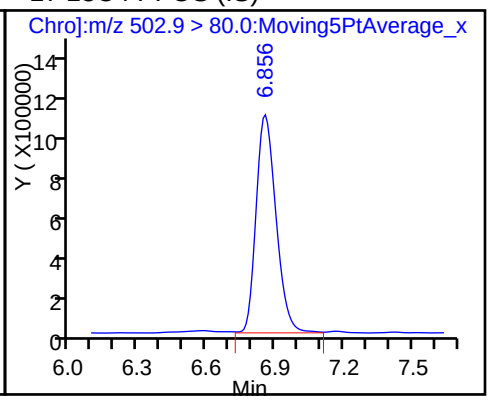
16 Perfluorooctanoic acid



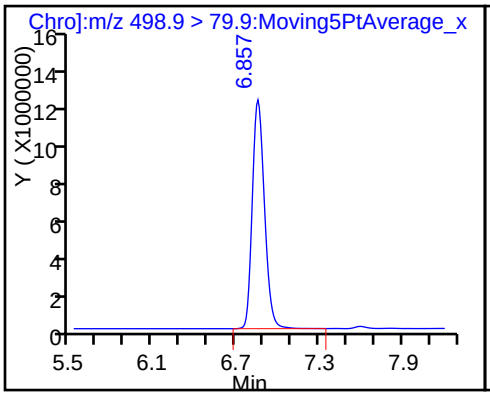
$ 18 13C8 PFOS



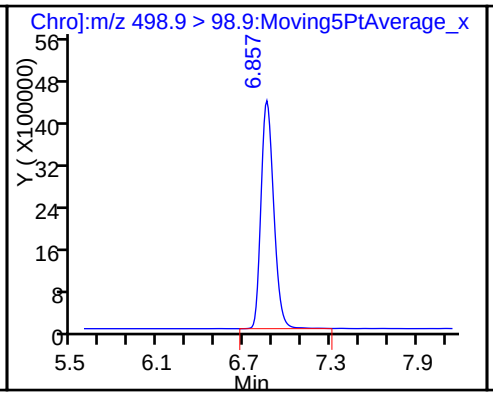
* 17 13C4 PFOS (IS)



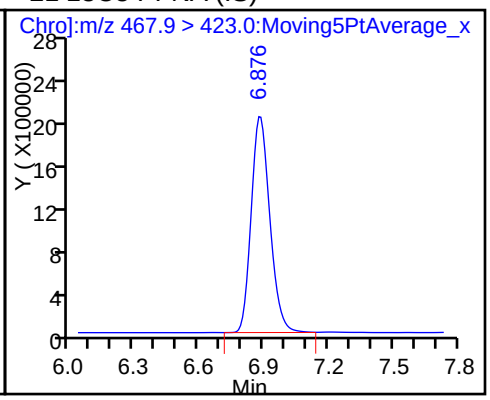
19 Perfluorooctane sulfonic acid



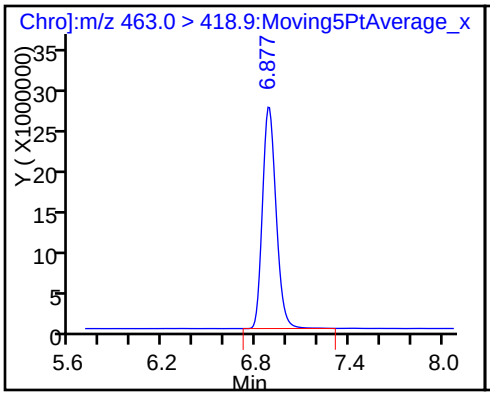
19 Perfluorooctane sulfonic acid



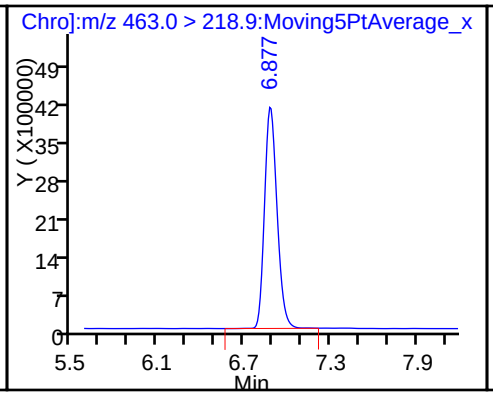
* 21 13C5 PFNA (IS)



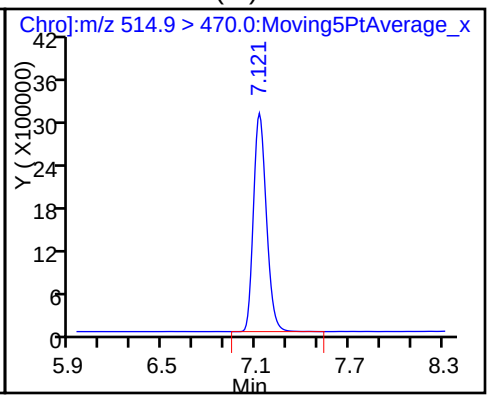
20 Perfluorononanoic acid



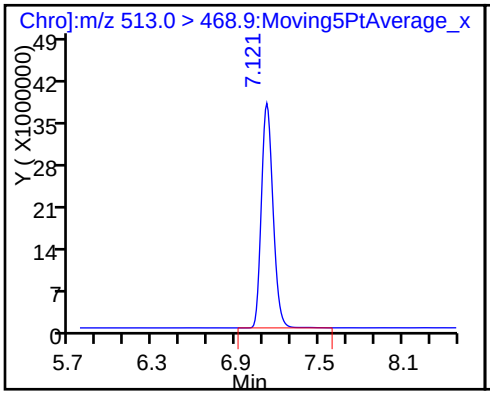
20 Perfluorononanoic acid



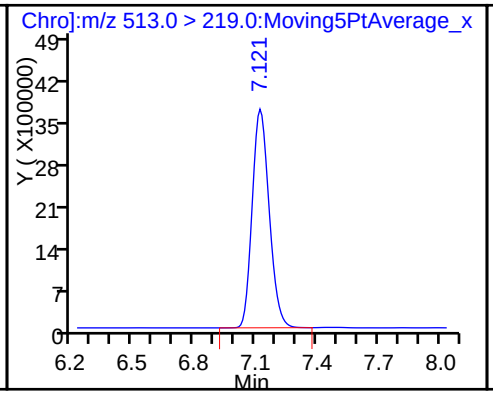
* 22 13C2 PFDA (IS)



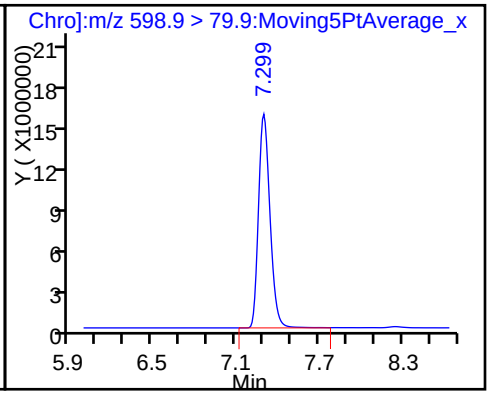
23 Perfluorodecanoic acid



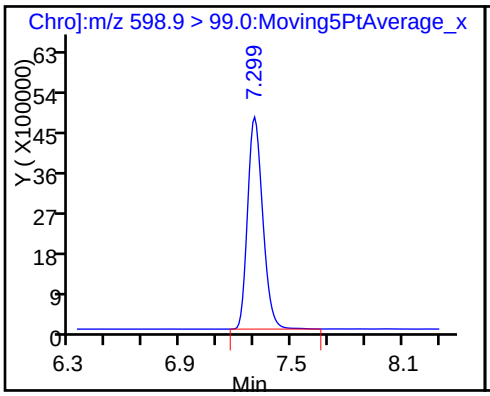
23 Perfluorodecanoic acid



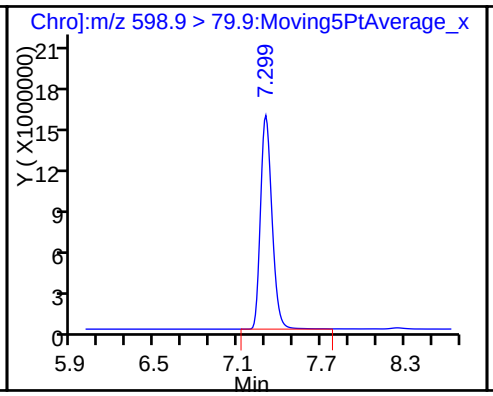
24 Perfluorodecane Sulfonic acid



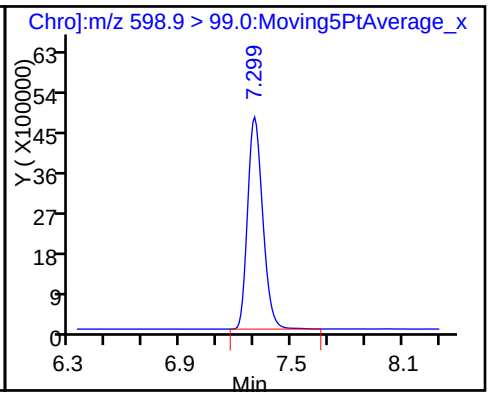
24 Perfluorodecane Sulfonic acid



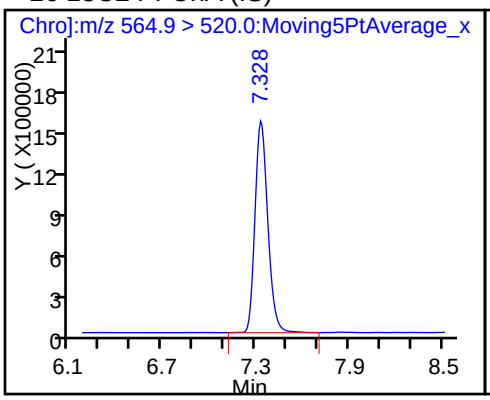
25 Perfluorodecane Sulfonate



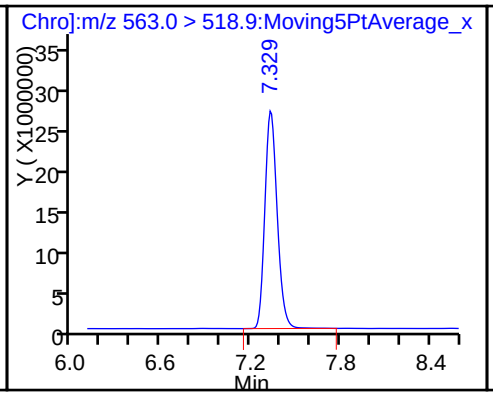
25 Perfluorodecane Sulfonate



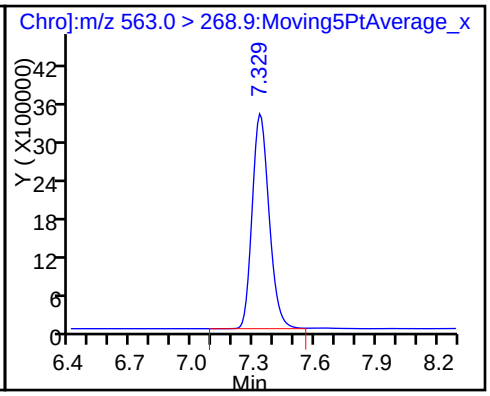
* 26 13C2 PFUnA (IS)



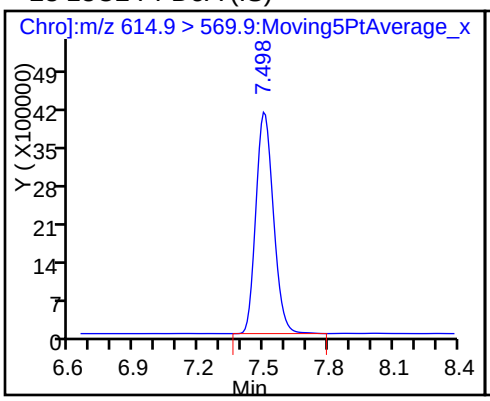
27 Perfluoroundecanoic acid



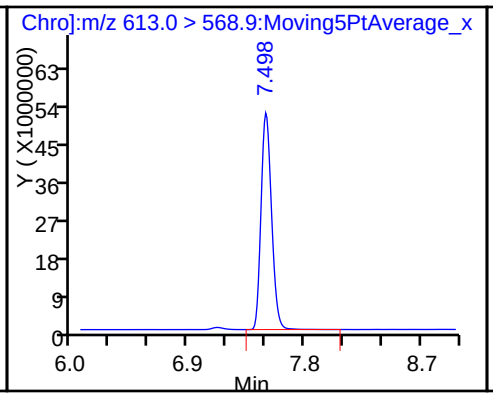
27 Perfluoroundecanoic acid



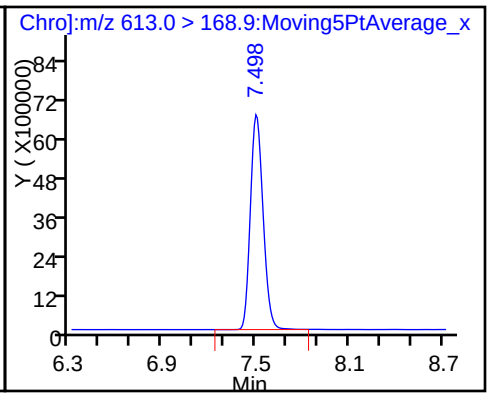
* 28 13C2 PFDoA (IS)



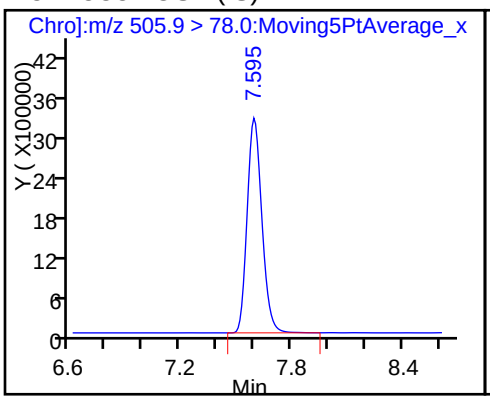
29 Perfluorododecanoic acid



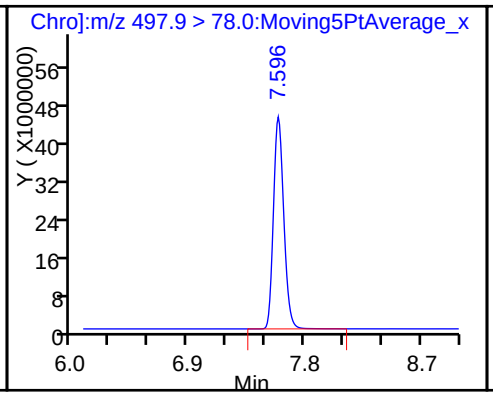
29 Perfluorododecanoic acid



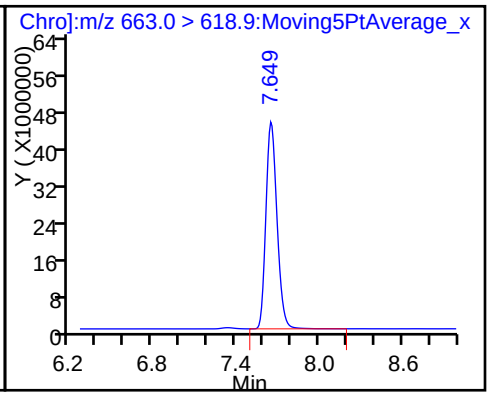
* 31 13C8 FOSA (IS)



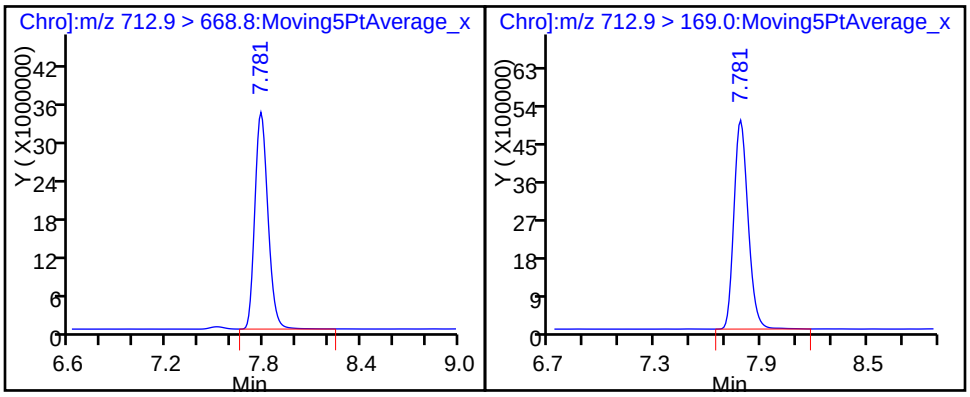
32 Perfluorooctane Sulfonamide



30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Lab Sample ID: ICV 280-328740/13 Calibration Date: 06/06/2016 16:53

Instrument ID: LC_LCMS5 Calib Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calib End Date: 06/06/2016 16:28

Lab File ID: PC516F06018.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	Lin2		1.068		1.99	2.00	-0.3	30.0
Perfluoropentanoic acid (PFPA)	Lin2		1.192		2.01	2.00	0.3	30.0
Perfluorobutane Sulfonate (PFBS)	Lin2		5.275		1.79	1.77	1.3	30.0
Perfluorobutanesulfonic acid	Lin2		5.275		1.79	1.77	1.3	30.0
Perfluorohexanoic acid (PFHxA)	Lin2		1.031		2.16	2.00	8.2	30.0
Perfluorohexane Sulfonate (PFHxS)	Lin2		4.421		2.01	1.82	10.5	30.0
Perfluorohexanesulfonic acid	Lin2		4.421		2.01	1.82	10.5	30.0
Perfluoroheptanoic acid (PFHpA)	Lin2		0.9850		2.24	2.00	11.9	30.0
Perfluoroheptane Sulfonate	Lin2		1.229		1.94	1.90	1.8	30.0
Perfluoroheptanesulfonic Acid (PFHpS)	Lin2		1.229		1.94	1.90	1.8	30.0
Perfluorooctanoic acid (PFOA)	Lin2		1.111		2.08	2.00	3.8	30.0
Perfluorooctanesulfonic acid (PFOS)	Lin2		1.331		2.22	2.00	10.8	30.0
Perfluorononanoic acid (PFNA)	Lin2		1.177		2.06	2.00	3.2	30.0
Perfluorodecanoic acid (PFDA)	Lin2		1.049		2.05	2.00	2.7	30.0
Perfluorodecane sulfonate (PFDS)	Lin2		1.196		1.83	1.93	-4.9	30.0
Perfluorodecane Sulfonic acid	Lin2		1.196		1.83	1.93	-4.9	30.0
Perfluoroundecanoic acid (PFUnA)	Lin2		1.377		1.90	2.00	-5.0	30.0
Perfluorododecanoic acid (PFDoA)	Lin2		1.036		1.97	2.00	-1.5	30.0
Perfluorooctane Sulfonamide (FOSA)	Lin2		1.131		2.08	2.00	3.8	30.0
Perfluorotridecanoic Acid (PFTriA)	Lin2		0.8932		1.86	2.00	-7.3	30.0
Perfluorotetradecanoic acid (PFTeA)	Lin2		0.6095		2.06	2.00	2.9	30.0
13C8 PFOA	Lin2		0.8307		10.3	10.0	2.8	30.0
13C8 PFOS	Lin2		0.5950		9.30	9.56	-2.7	30.0

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06018.d
Lims ID: ICV
Client ID:
Sample Type: ICV
Inject. Date: 06-Jun-2016 16:53:00 ALS Bottle#: 0 Worklist Smp#: 13
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: ICV, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub2

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 07-Jun-2016 14:09:37 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK003

First Level Reviewer: meyera Date: 07-Jun-2016 13:01:54

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.465	4.465	0.0		32017793	10.0			
2 Perfluorobutyric acid									M
213.0 > 168.9	4.465	4.465	0.0	1.000	6838874	1.99			M
3 Perfluoropentanoic acid									
263.0 > 218.9	5.336	5.336	0.0	0.907	5621809	2.01			
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.440	5.440	0.0	0.863	2478614	1.79			
298.9 > 98.9	5.450	5.440	0.010	0.865	814315		3.04(2.57-2.57)		
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.440	5.440	0.0	0.863	2478614	1.79			
298.9 > 98.9	5.450	5.440	0.010	0.865	814315		3.04(1.80-3.35)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.885	5.885	0.0		23574022	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.885	5.885	0.0	1.000	4860408	2.16			
313.0 > 118.6	5.876	5.885	-0.009	0.998	148939		32.63(34.05-63.23)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.292	6.292	0.0	0.949	6515774	2.24			
363.0 > 168.9	6.292	6.292	0.0	0.949	1577933		4.13(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.300	6.300	0.0		2511258	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.291	6.291	0.0	0.999	2138144	2.01			R
398.9 > 98.9	6.301	6.291	0.010	1.000	735033		2.91(1.30-2.41)		
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.291	6.291	0.0	0.999	2138144	2.01			
398.9 > 98.9	6.301	6.291	0.010	1.000	735033		2.91(1.85-1.85)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.621	6.621	0.0	0.959	2366786	1.94			
449.0 > 98.9	6.621	6.621	0.0	0.959	812675		2.91(0.00-0.00)		
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.621	6.621	0.0	0.959	2366786	1.94			
449.0 > 98.9	6.621	6.621	0.0	0.959	812675		2.91(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.631	6.631	0.0	1.000	27475708	10.3			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.631	6.631	0.0		33074850	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.632	6.632	0.0	1.000	7348842	2.08			
413.0 > 169.0	6.632	6.632	0.0	1.000	2155704		3.41(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.894	6.894	0.0	0.999	5752747	9.30			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.904	6.904	0.0		9669285	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.895	6.895	0.0	0.999	2692274	2.22			R
498.9 > 98.9	6.895	6.895	0.0	0.999	893875		3.01(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.914	6.914	0.0		25183863	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.924	6.924	0.0	1.001	5925743	2.06			
463.0 > 218.9	6.914	6.924	-0.010	1.000	1008448		5.88(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.158	7.158	0.0		27322567	10.0			
23 Perfluorodecanoic acid									R
513.0 > 468.9	7.159	7.159	0.0	1.000	5730976	2.05			R
513.0 > 219.0	7.159	7.159	0.0	1.000	575203		9.96(10.49-19.48)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.337	7.337	0.0	1.063	2332951	1.83			
598.9 > 99.0	7.337	7.337	0.0	1.063	660422		3.53(2.84-2.84)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.337	7.337	0.0	1.063	2332951	1.83			
598.9 > 99.0	7.337	7.337	0.0	1.063	660422		3.53(1.99-3.69)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.366	7.366	0.0		17486001	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.366	7.366	0.0	1.000	4817084	1.90			R
563.0 > 268.9	7.357	7.366	-0.009	0.999	609957		7.90(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.545	7.545	0.0		34783992	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.545	7.545	0.0	1.000	7204407	1.97			
613.0 > 168.9	7.545	7.545	0.0	1.000	1003485		7.18(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.642	7.642	0.0		26768431	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.643	7.643	0.0	1.000	6056968	2.08			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.696	7.696	0.0	1.020	6213513	1.85			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.829	7.829	0.0	1.038	4240024	2.06			
712.9 > 169.0	7.829	7.829	0.0	1.038	763420		5.55(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Review Flags

M - Manually Integrated

Reagents:

PFC_Surr_00021	Amount Added:	20.00	Units: uL
PFC-IS_00021	Amount Added:	20.00	Units: uL
PFC_ICV-2_00001	Amount Added:	20.00	Units: uL
PFHpS-LCS_00002	Amount Added:	4.00	Units: uL

Report Date: 07-Jun-2016 14:09:38 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06018.d

Injection Date: 06-Jun-2016 16:53:00 Instrument ID: LC_LCMS5

Lims ID: ICV

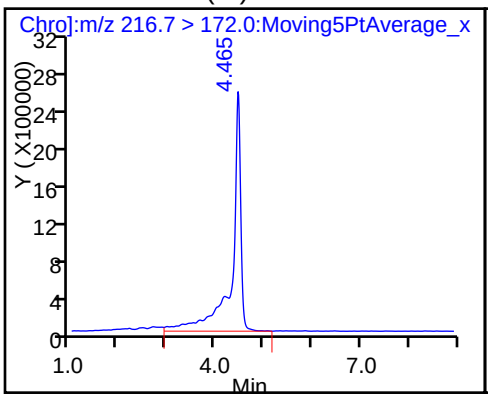
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 13

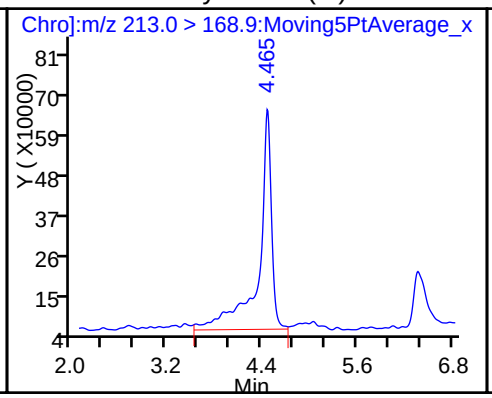
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

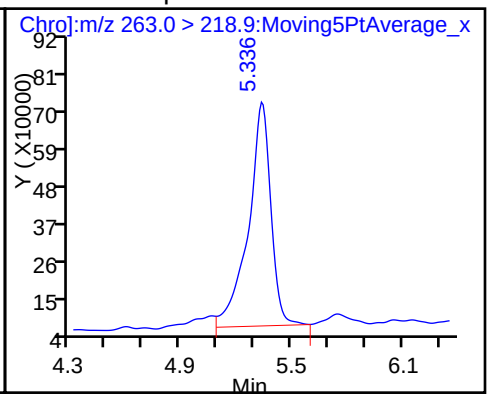
* 1 13C4 PFBA (IS)



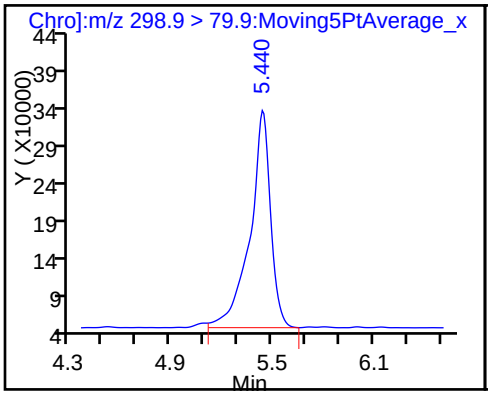
2 Perfluorobutyric acid (M)



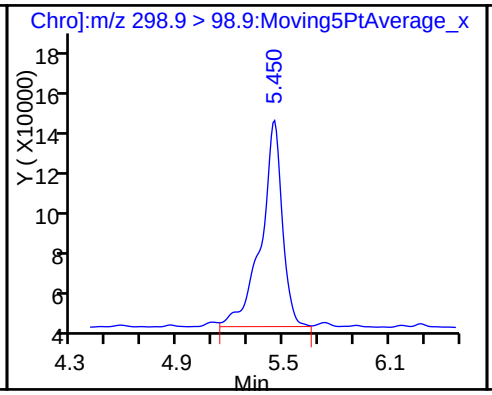
3 Perfluoropentanoic acid



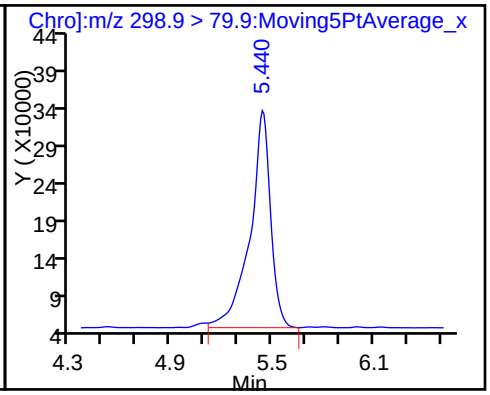
5 Perfluorobutanesulfonic acid



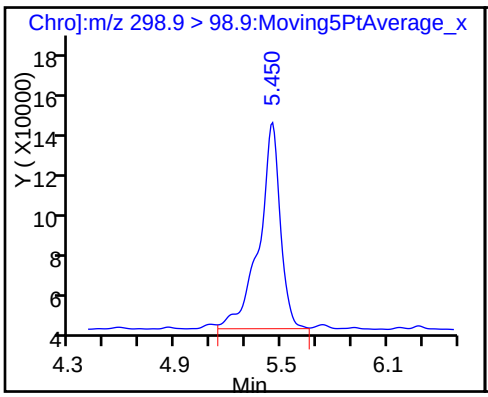
5 Perfluorobutanesulfonic acid



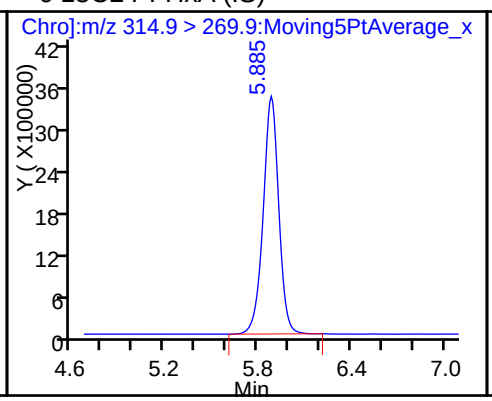
4 Perfluorobutane Sulfonate



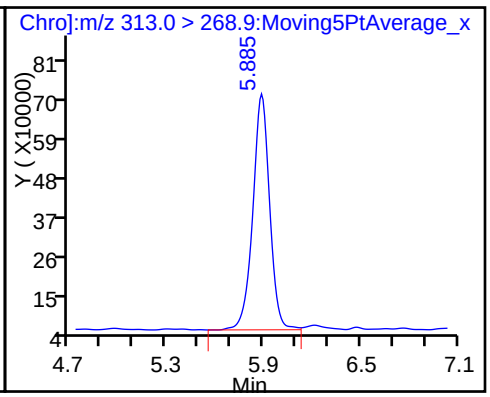
4 Perfluorobutane Sulfonate



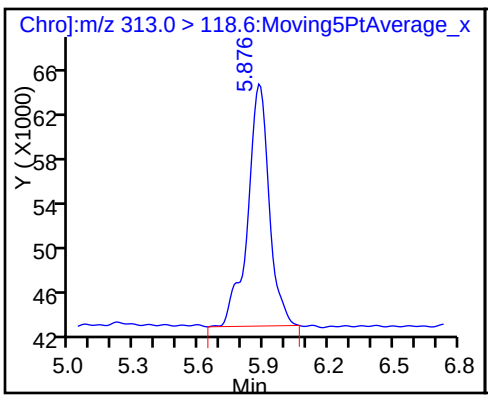
* 6 13C2 PFHxA (IS)



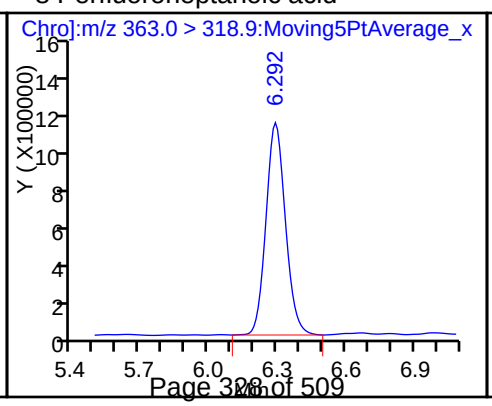
7 Perfluorohexanoic acid



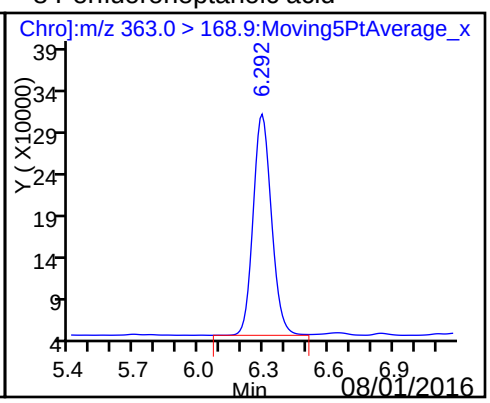
7 Perfluorohexanoic acid



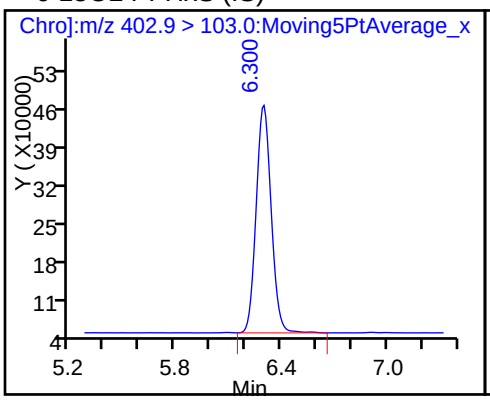
8 Perfluoroheptanoic acid



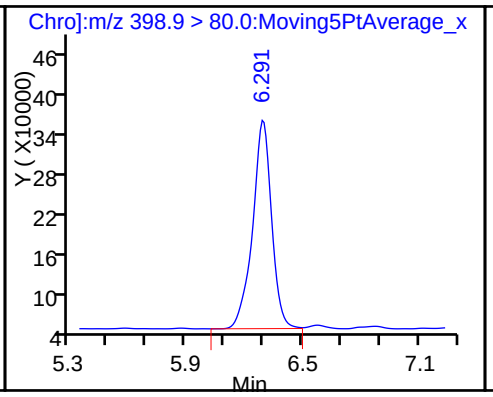
8 Perfluoroheptanoic acid



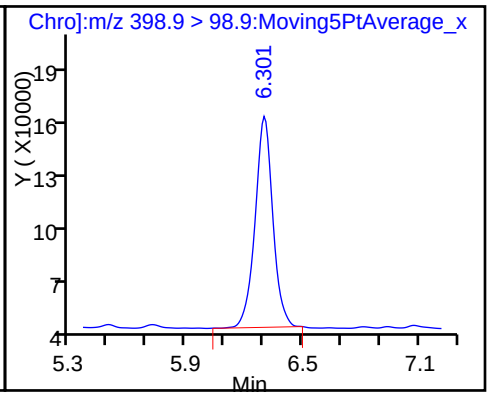
* 9 18O2 PFHxS (IS)



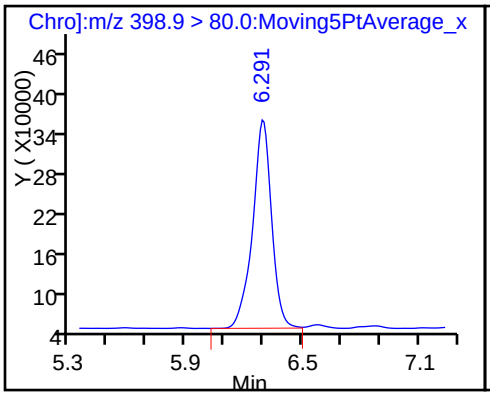
10 Perfluorohexane Sulfonate



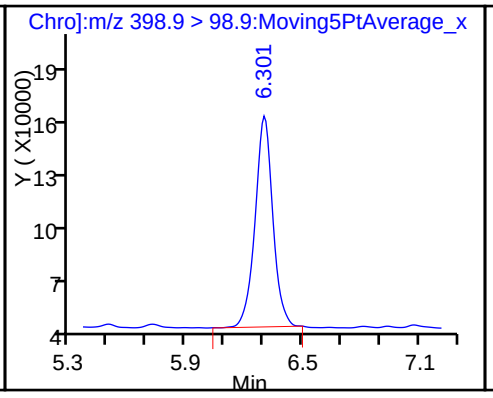
10 Perfluorohexane Sulfonate



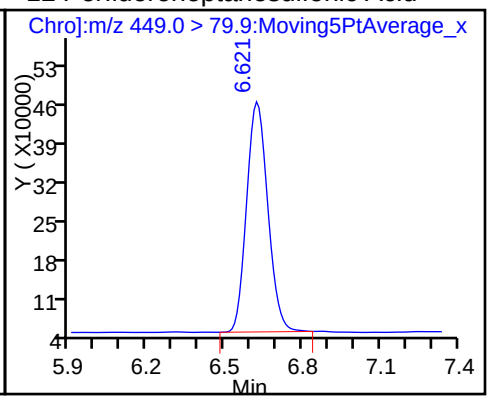
11 Perfluorohexanesulfonic acid



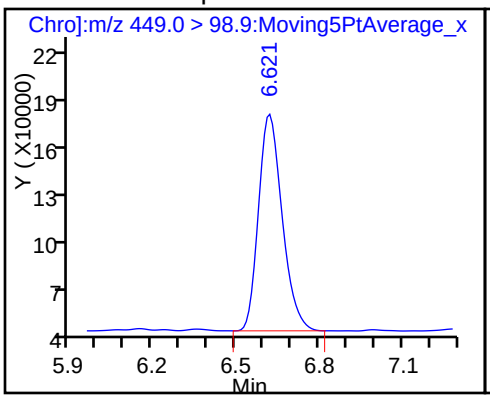
11 Perfluorohexanesulfonic acid



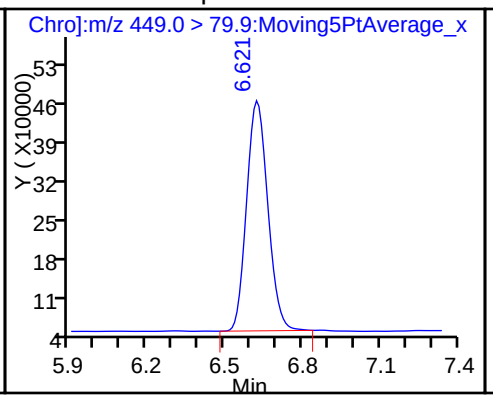
12 Perfluoroheptanesulfonic Acid



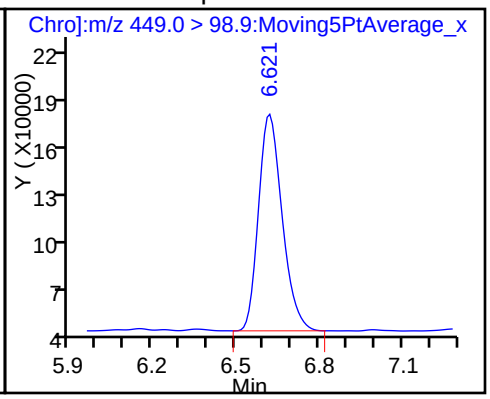
12 Perfluoroheptanesulfonic Acid



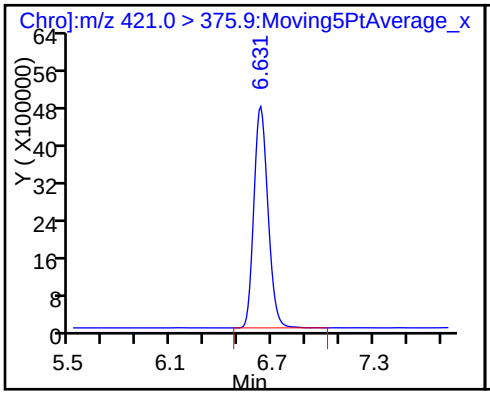
13 Perfluoroheptane Sulfonate



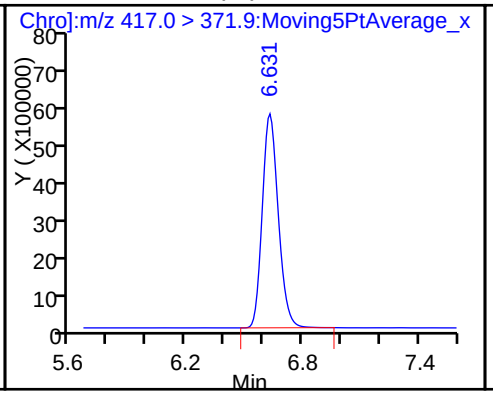
13 Perfluoroheptane Sulfonate



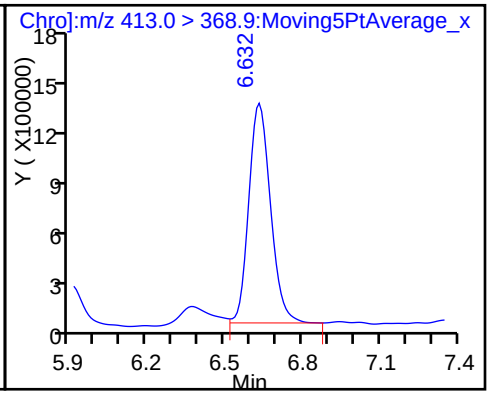
$ 14 13C8 PFOA



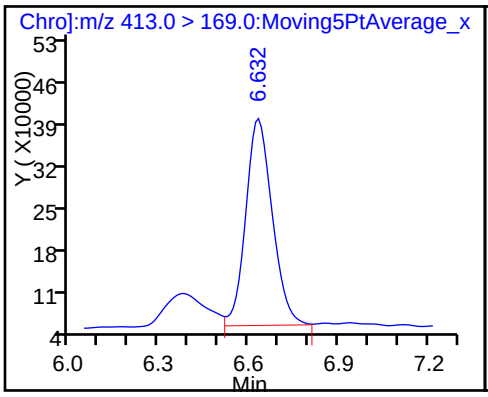
* 15 13C4 PFOA (IS)



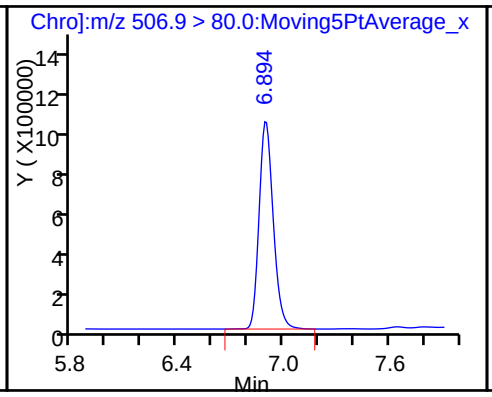
16 Perfluorooctanoic acid



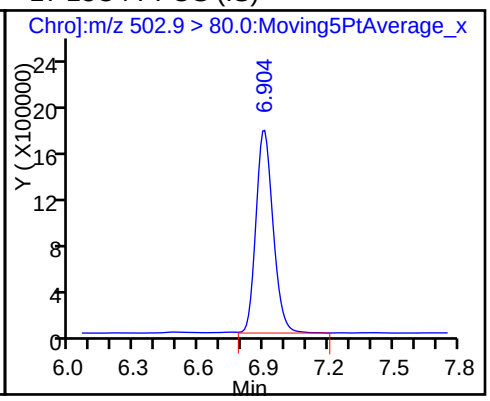
16 Perfluorooctanoic acid



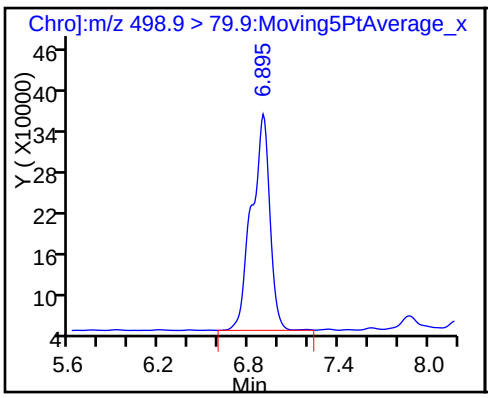
$ 18 13C8 PFOS



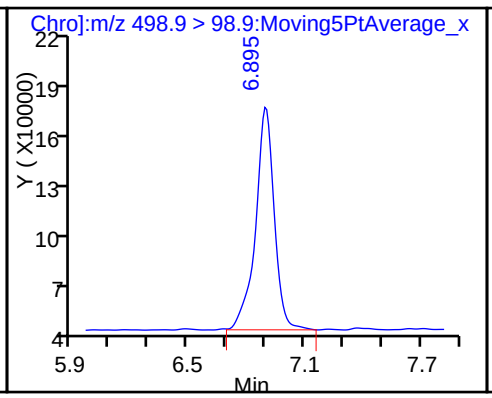
* 17 13C4 PFOS (IS)



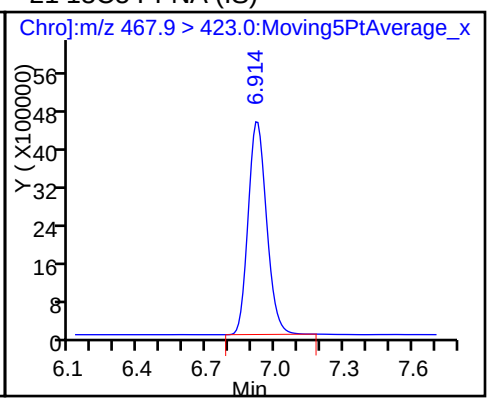
19 Perfluorooctane sulfonic acid



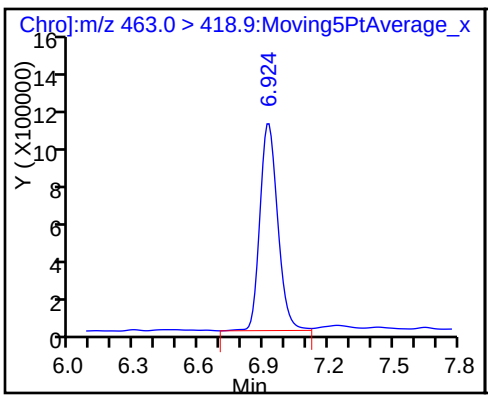
19 Perfluorooctane sulfonic acid



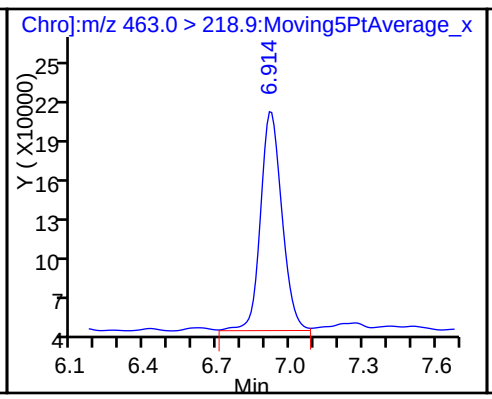
* 21 13C5 PFNA (IS)



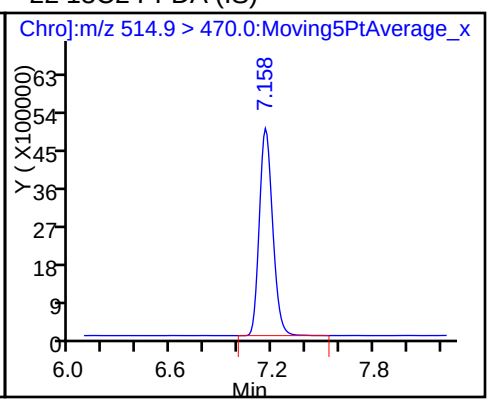
20 Perfluorononanoic acid



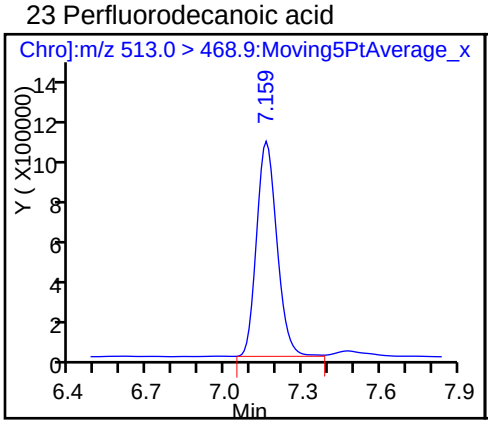
20 Perfluorononanoic acid



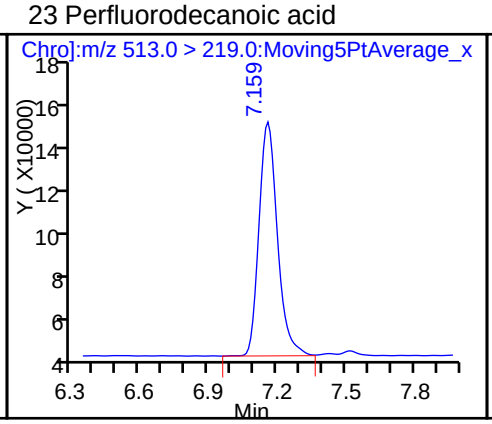
* 22 13C2 PFDA (IS)



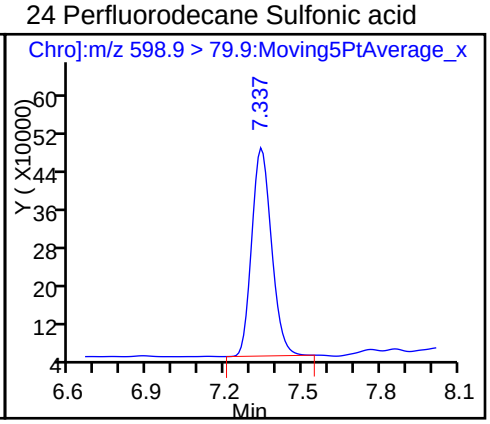
23 Perfluorodecanoic acid



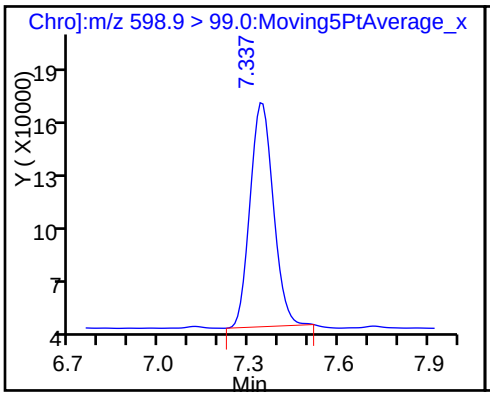
23 Perfluorodecanoic acid



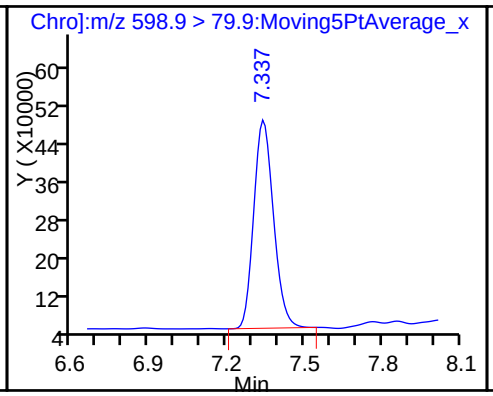
24 Perfluorodecane Sulfonic acid



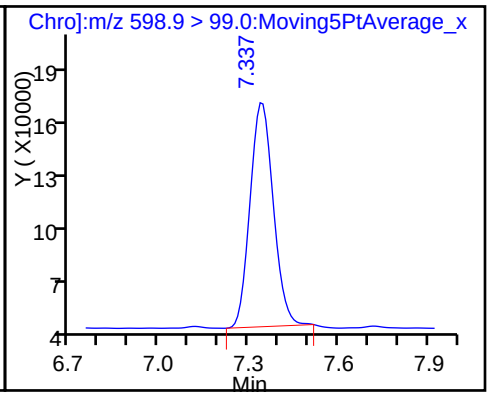
24 Perfluorodecane Sulfonic acid



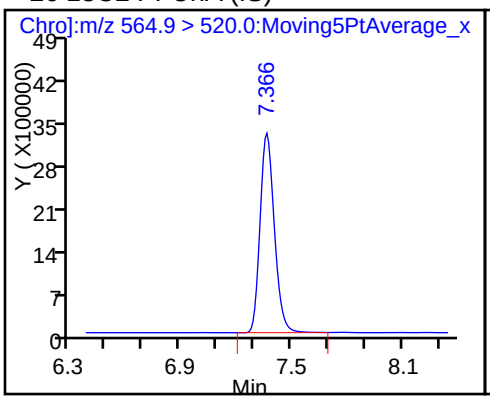
25 Perfluorodecane Sulfonate



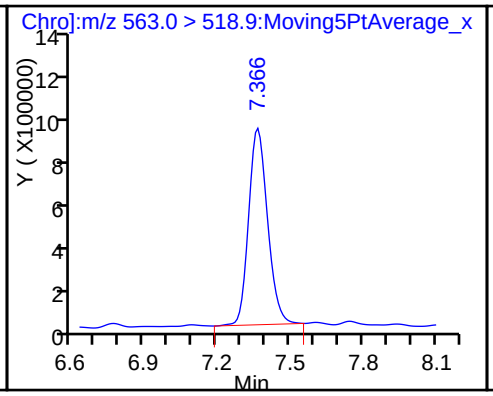
25 Perfluorodecane Sulfonate



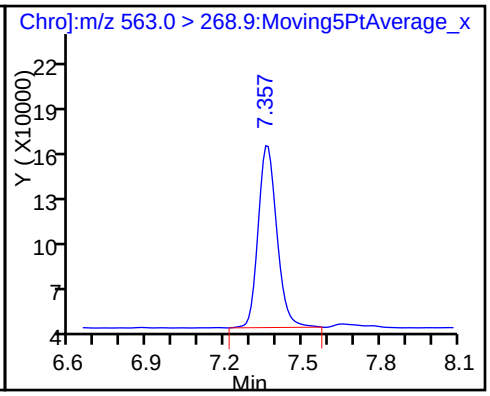
* 26 13C2 PFUnA (IS)



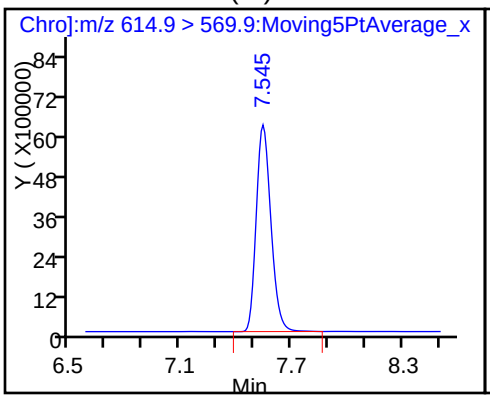
27 Perfluoroundecanoic acid



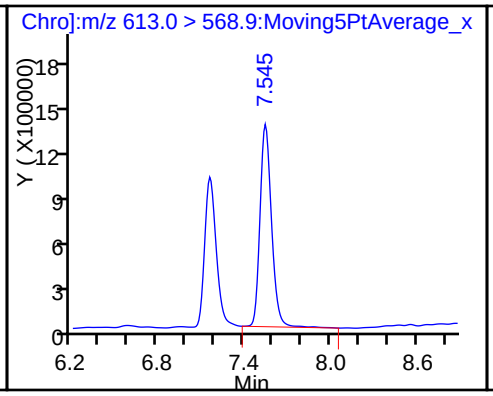
27 Perfluoroundecanoic acid



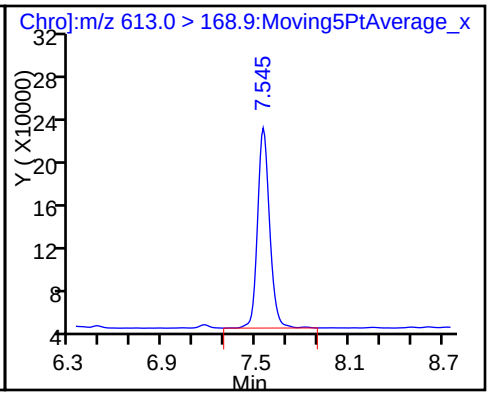
* 28 13C2 PFDoA (IS)



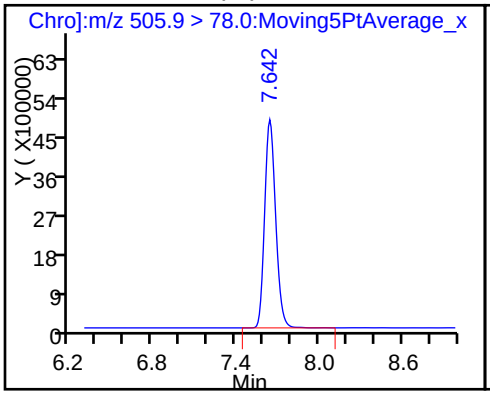
29 Perfluorododecanoic acid



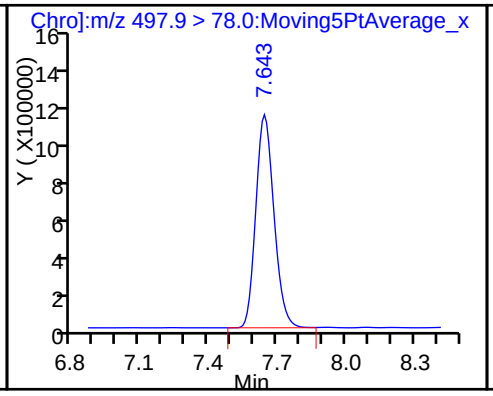
29 Perfluorododecanoic acid



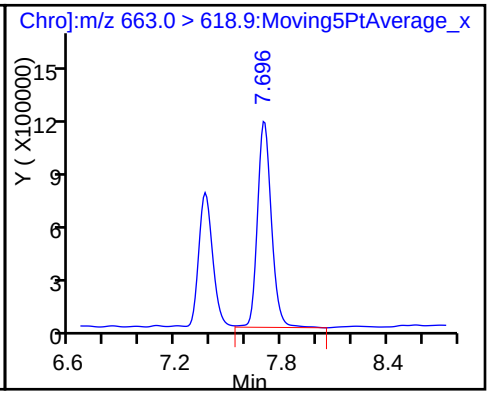
* 31 13C8 FOSA (IS)



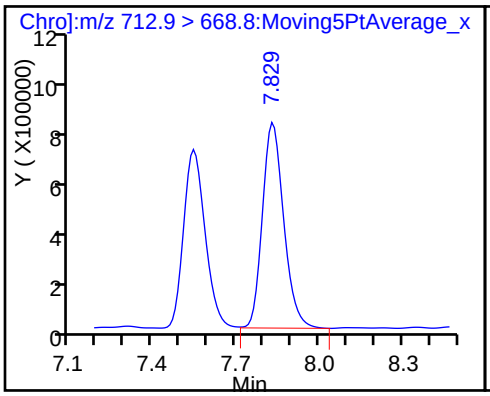
32 Perfluorooctane Sulfonamide



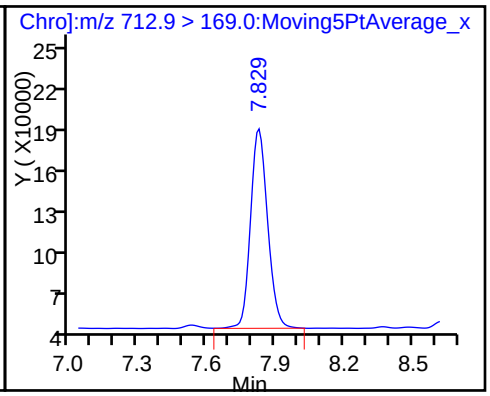
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



Manual Integration/User Assign Peak Report

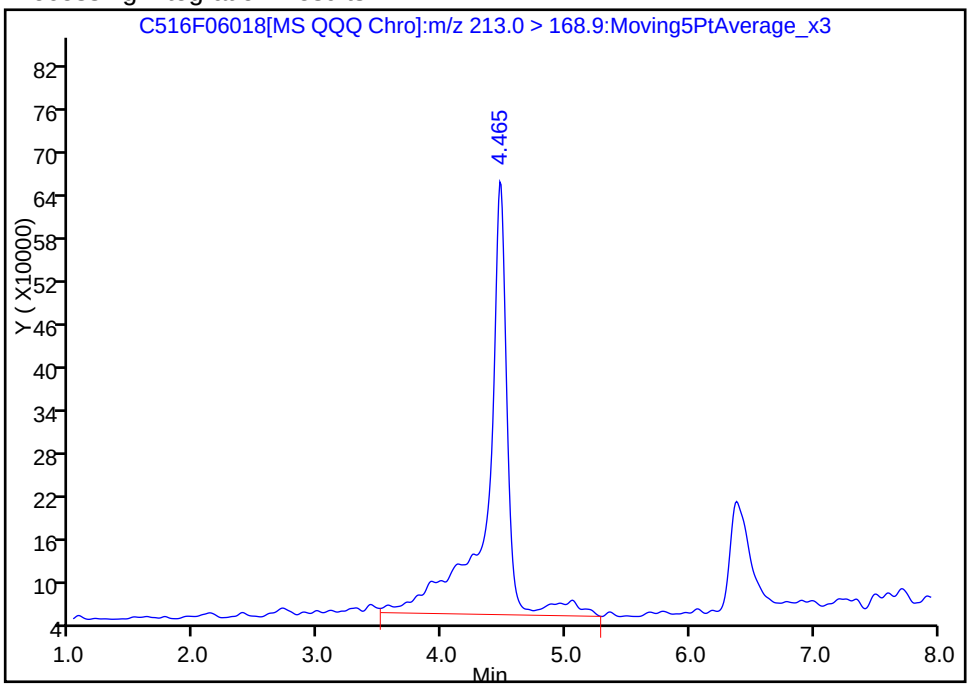
TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06018.d
Injection Date: 06-Jun-2016 16:53:00 Instrument ID: LC_LCMS5
Lims ID: ICV
Client ID:
Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 13
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Method: 8321_PFC Limit Group: LC - PFC
Column: Detector MS QQQ

2 Perfluorobutyric acid, CAS: 375-22-4

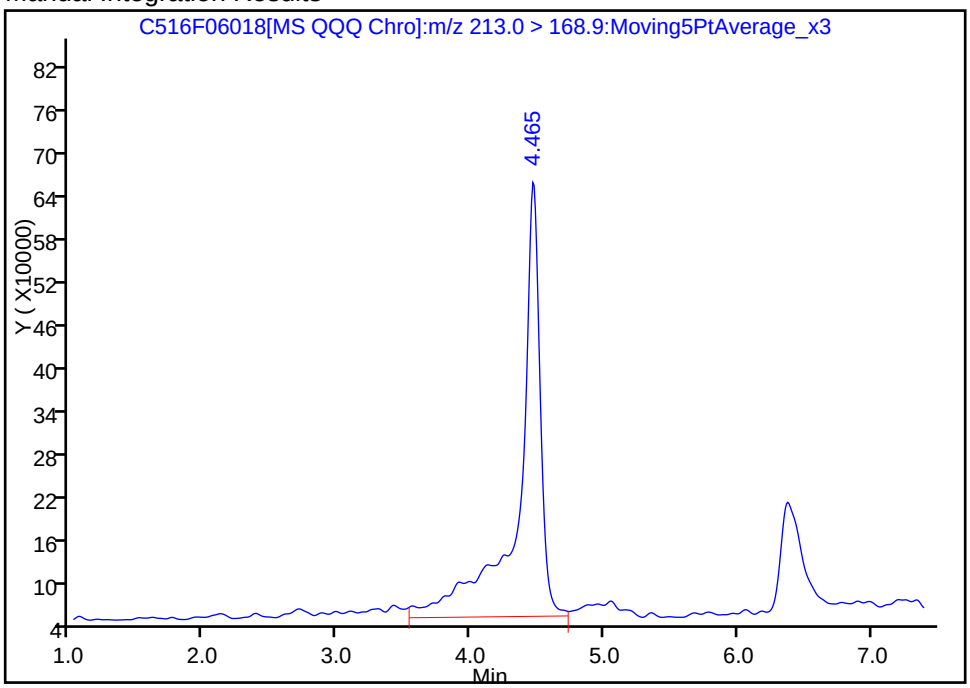
Processing Integration Results

RT: 4.47
Area: 7042596
Amount: 2.053296
Amount Units: ug/L



Manual Integration Results

RT: 4.47
Area: 6838874
Amount: 1.993999
Amount Units: ug/L



Reviewer: meyera, 07-Jun-2016 13:01:54
Audit Action: Manually Integrated
Audit Reason: Baseline

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Lab Sample ID: CCV 280-334166/31 Calibration Date: 07/18/2016 19:03

Instrument ID: LC_LCMS5 Calib Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calib End Date: 06/06/2016 16:28

Lab File ID: PC516G18036.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	Lin2		0.8540		3.98	5.00	-20.3	30.0
Perfluoropentanoic acid (PFPA)	Lin2		1.351		5.73	5.00	14.6	30.0
Perfluorobutane Sulfonate (PFBS)	Lin2		5.113		4.34	4.43	-2.0	30.0
Perfluorobutanesulfonic acid	Lin2		5.113		4.34	4.43	-2.0	30.0
Perfluorohexanoic acid (PFHxA)	Lin2		1.021		5.39	5.00	7.8	30.0
Perfluoroheptanoic acid (PFHpA)	Lin2		0.9310		5.34	5.00	6.7	30.0
Perfluorohexane Sulfonate (PFHxS)	Lin2		4.267		5.17	4.73	9.4	30.0
Perfluorohexanesulfonic acid	Lin2		4.267		5.17	4.73	9.4	30.0
Perfluoroheptane Sulfonate	Lin2		1.123		4.42	4.76	-7.2	30.0
Perfluoroheptanesulfonic Acid (PFHpS)	Lin2		1.123		4.42	4.76	-7.2	30.0
Perfluorooctanoic acid (PFOA)	Lin2		1.081		5.16	5.00	3.1	30.0
Perfluorooctanesulfonic acid (PFOS)	Lin2		1.146		4.63	4.78	-3.0	30.0
Perfluorononanoic acid (PFNA)	Lin2		1.149		5.10	5.00	2.0	30.0
Perfluorodecanoic acid (PFDA)	Lin2		1.004		4.97	5.00	-0.7	30.0
Perfluorodecane sulfonate (PFDS)	Lin2		1.160		4.50	4.83	-6.7	30.0
Perfluorodecane Sulfonic acid	Lin2		1.160		4.50	4.83	-6.7	30.0
Perfluoroundecanoic acid (PFUnA)	Lin2		1.516		5.33	5.00	6.5	30.0
Perfluorododecanoic acid (PFDoA)	Lin2		1.068		5.17	5.00	3.4	30.0
Perfluorotridecanoic Acid (PFTriA)	Lin2		0.9411		5.02	5.00	0.4	30.0
Perfluorooctane Sulfonamide (FOSA)	Lin2		1.195		5.50	5.00	10.0	30.0
Perfluorotetradecanoic acid (PFTeA)	Lin2		0.7158		6.05	5.00	21.1	30.0
13C8 PFOA	Lin2		0.9151		5.64	5.00	12.7	30.0
13C8 PFOS	Lin2		0.7031		5.48	4.78	14.7	30.0

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18036.d
Lims ID: CCV PFC L5
Client ID:
Sample Type: CCV
Inject. Date: 18-Jul-2016 19:03:21 ALS Bottle#: 0 Worklist Smp#: 31
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: CCV PFC L5, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 19-Jul-2016 15:53:00 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK035

First Level Reviewer: fiedlerh Date: 19-Jul-2016 13:22:25

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.333	4.333	0.0		35691996	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	4.333	4.333	0.0	1.000	15240131	3.98			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.346	5.346	0.0	0.901	11436429	5.73			
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.459	5.459	0.0	0.857	4465271	4.33			
298.9 > 98.9	5.459	5.459	0.0	0.857	1331061		3.35(1.80-3.35)		
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.459	5.459	0.0	0.857	4465271	4.33			
298.9 > 98.9	5.459	5.459	0.0	0.857	1331061		3.35(2.57-2.57)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.932	5.932	0.0		16934336	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.932	5.932	0.0	1.000	8647636	5.39			
313.0 > 118.6	5.913	5.932	-0.019	0.997	228169		37.90(34.05-63.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.367	6.367	0.0		1867122	9.46			
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.367	6.367	0.0	1.000	3978901	5.17			
398.9 > 98.9	6.367	6.367	0.0	1.000	1269514		3.13(1.85-1.85)		
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.367	6.367	0.0	1.000	3978901	5.17			R
398.9 > 98.9	6.367	6.367	0.0	1.000	1269514		3.13(1.30-2.41)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.358	6.358	0.0	0.949	12864742	5.34			
363.0 > 168.9	6.358	6.358	0.0	0.949	3755843		3.43(3.35-6.23)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.688	6.688	0.0	0.959	4107887	4.42			
449.0 > 98.9	6.688	6.688	0.0	0.959	1334290		3.08(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.688	6.688	0.0	0.959	4107887	4.42			
449.0 > 98.9	6.688	6.688	0.0	0.959	1334290		3.08(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.697	6.697	0.0	1.000	12644031	5.64			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.698	6.698	0.0		27635223	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.698	6.698	0.0	1.000	14939287	5.16			
413.0 > 169.0	6.698	6.698	0.0	1.000	4893767		3.05(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.970	6.970	0.0	1.000	2582555	5.48			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.970	6.970	0.0		7346439	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.970	6.970	0.0	1.000	4205871	4.63			R
498.9 > 98.9	6.970	6.970	0.0	1.000	1650204		2.55(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.990	6.990	0.0		21233302	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.990	6.990	0.0	1.000	12196153	5.10			
463.0 > 218.9	6.990	6.990	0.0	1.000	1883241		6.48(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.225	7.225	0.0		21812851	10.0			
23 Perfluorodecanoic acid									R
513.0 > 468.9	7.225	7.225	0.0	1.000	10949356	4.97			R
513.0 > 219.0	7.225	7.225	0.0	1.000	1154786		9.48(10.49-19.48)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.404	7.404	0.0	1.062	4300724	4.50			
598.9 > 99.0	7.404	7.404	0.0	1.062	1295817		3.32(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.404	7.404	0.0	1.062	4300724	4.50			
598.9 > 99.0	7.404	7.404	0.0	1.062	1295817		3.32(2.84-2.84)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.432	7.432	0.0		13761043	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.433	7.433	0.0	1.000	10434203	5.33			R
563.0 > 268.9	7.433	7.433	0.0	1.000	1197514		8.71(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.602	7.602	0.0		27647676	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.602	7.602	0.0	1.000	14761181	5.17			
613.0 > 168.9	7.602	7.602	0.0	1.000	1755853		8.41(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.756	7.756	0.0		20560844	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.757	7.757	0.0	1.000	12289392	5.50			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.753	7.753	0.0	1.020	13009721	5.02			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.885	7.885	0.0	1.037	9894909	6.05			
712.9 > 169.0	7.876	7.885	-0.009	1.036	1619858		6.11(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Reagents:

PFC-IS_00021	Amount Added:	20.00	Units: uL
PFC_Surr_00021	Amount Added:	10.00	Units: uL
PFC-LCS_00078	Amount Added:	10.00	Units: uL

Report Date: 19-Jul-2016 15:53:01 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18036.d

Injection Date: 18-Jul-2016 19:03:21 Instrument ID: LC_LCMS5

Lims ID: CCV PFC L5

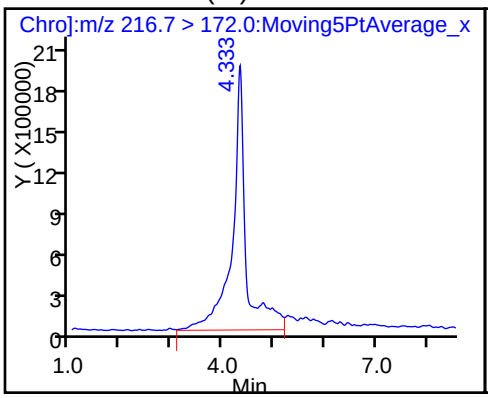
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 31

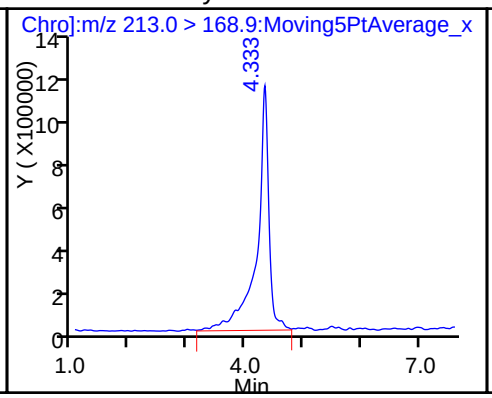
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

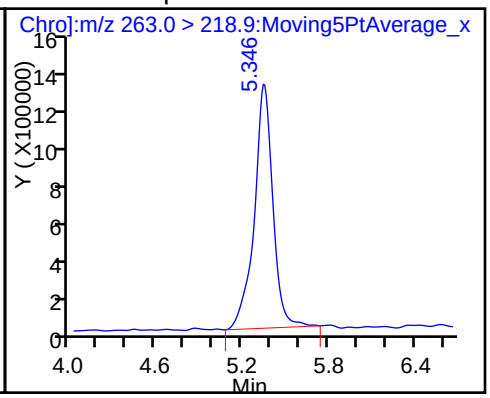
* 1 13C4 PFBA (IS)



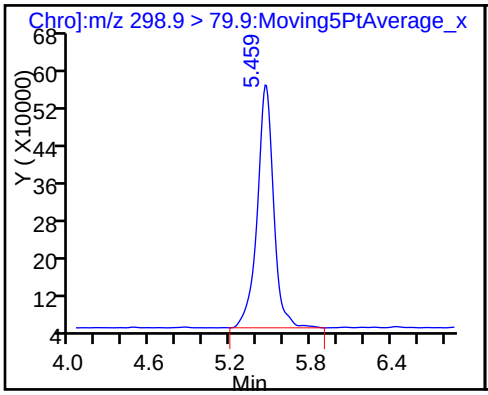
2 Perfluorobutyric acid



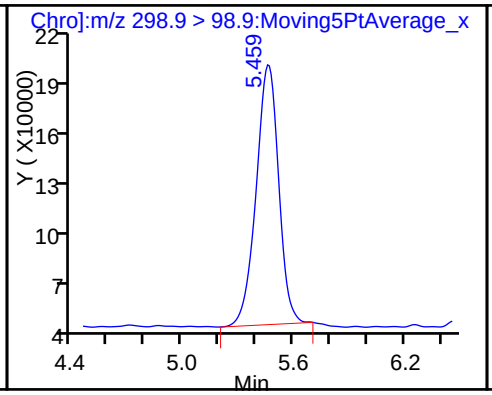
3 Perfluoropentanoic acid



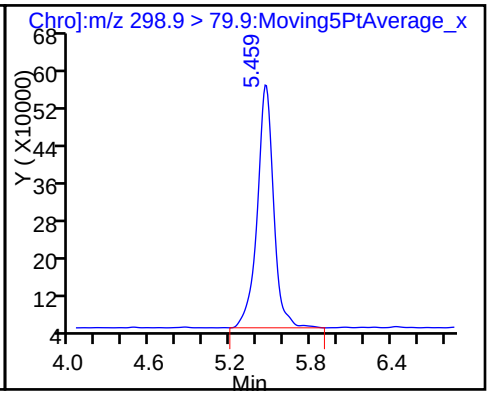
4 Perfluorobutane Sulfonate



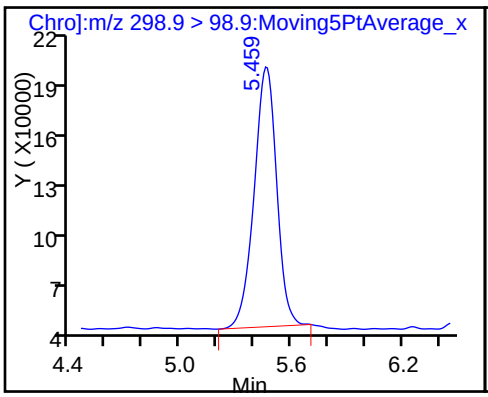
4 Perfluorobutane Sulfonate



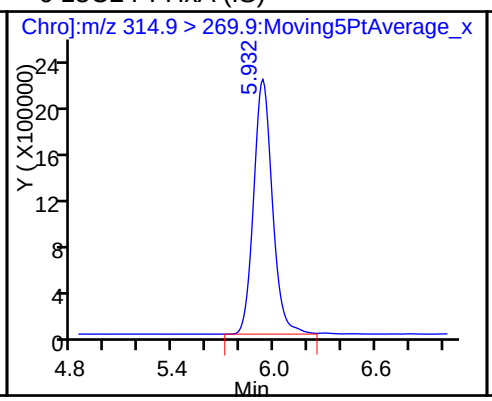
5 Perfluorobutanesulfonic acid



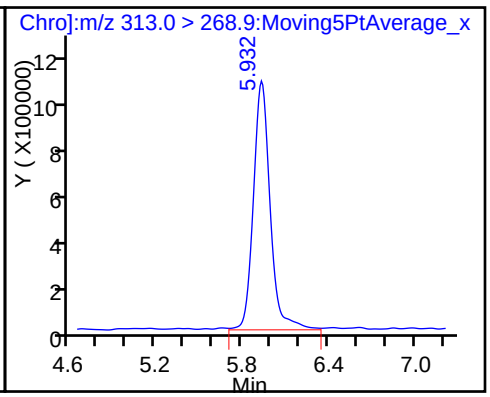
5 Perfluorobutanesulfonic acid



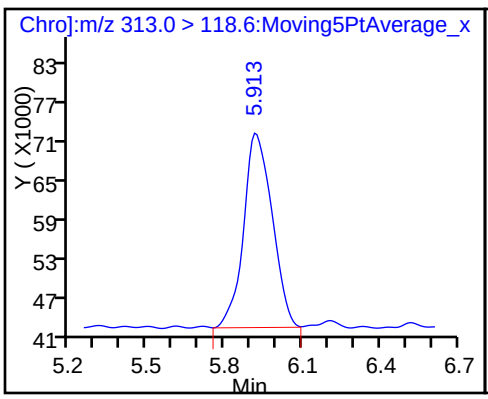
* 6 13C2 PFHxA (IS)



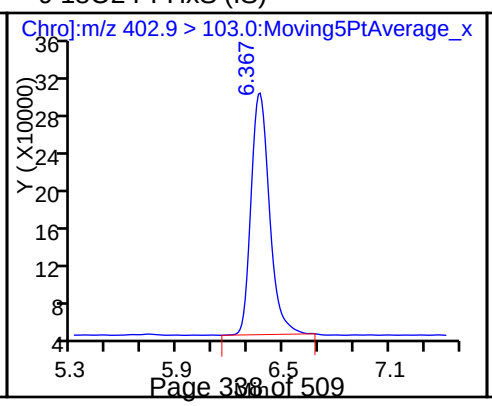
7 Perfluorohexanoic acid



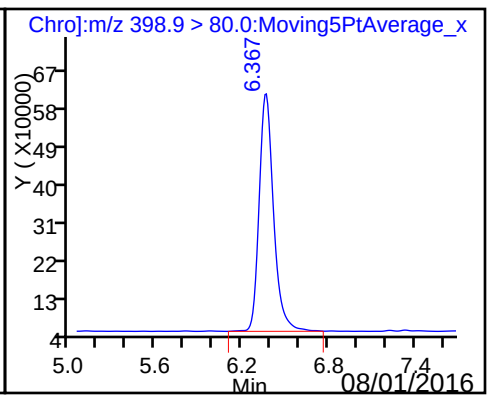
7 Perfluorohexanoic acid



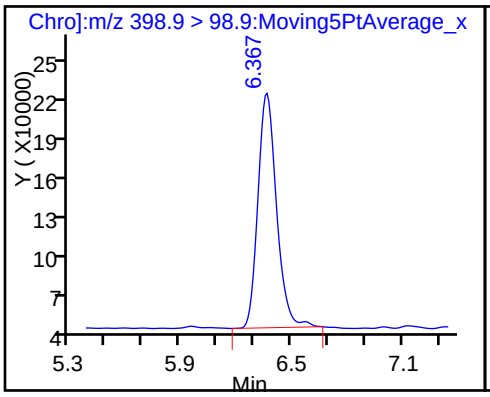
* 9 18O2 PFHxS (IS)



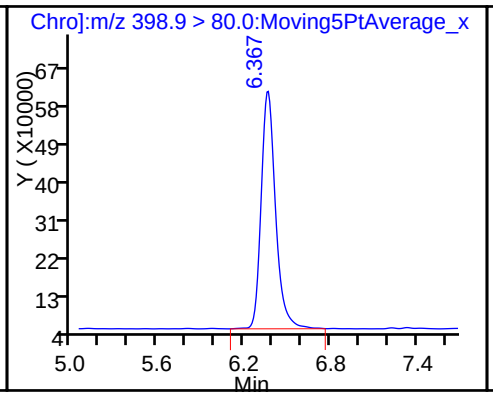
11 Perfluorohexanesulfonic acid



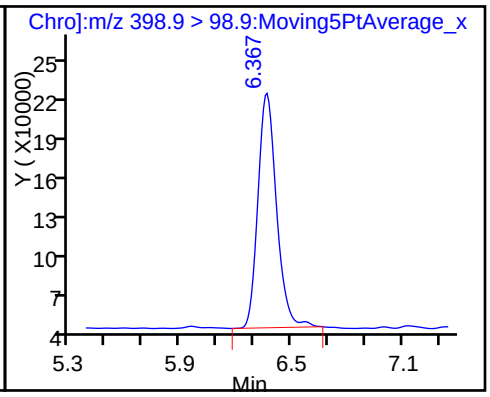
11 Perfluorohexanesulfonic acid



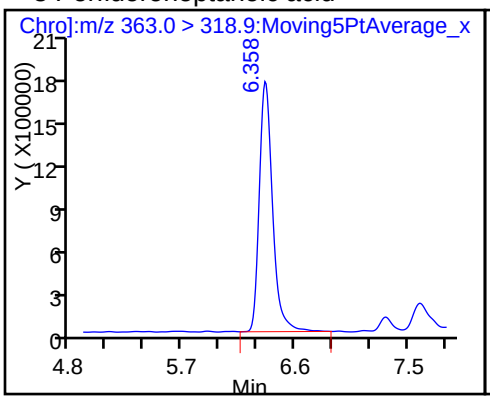
10 Perfluorohexane Sulfonate



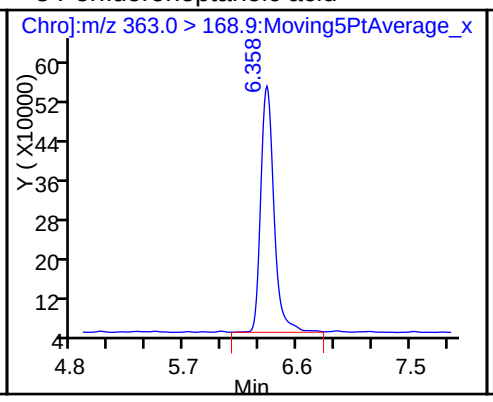
10 Perfluorohexane Sulfonate



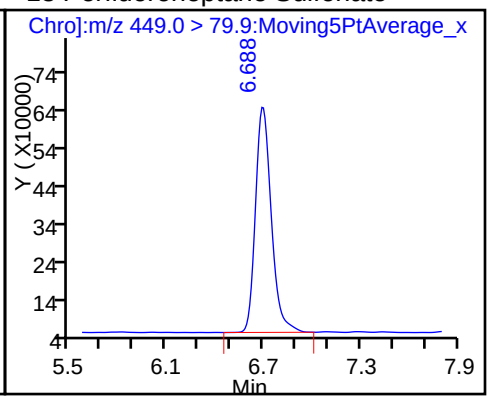
8 Perfluoroheptanoic acid



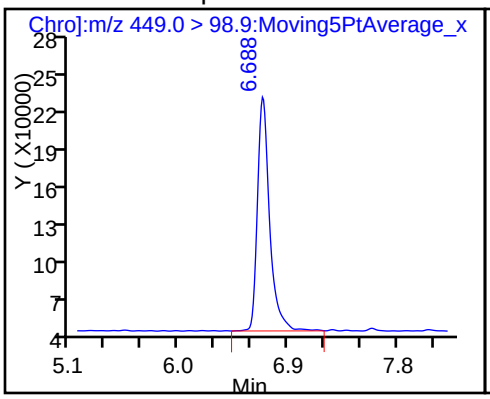
8 Perfluoroheptanoic acid



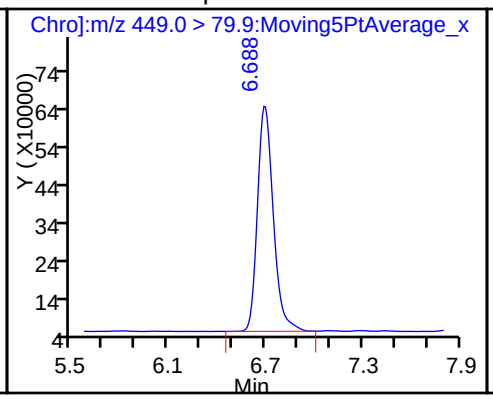
13 Perfluoroheptane Sulfonate



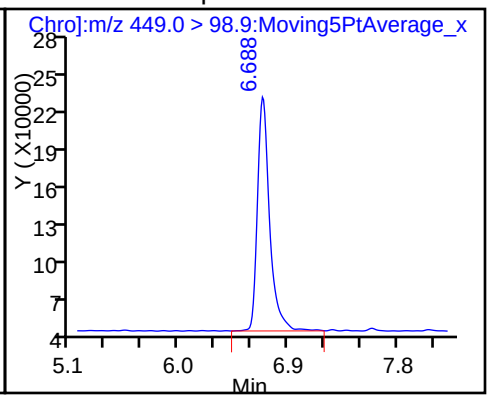
13 Perfluoroheptane Sulfonate



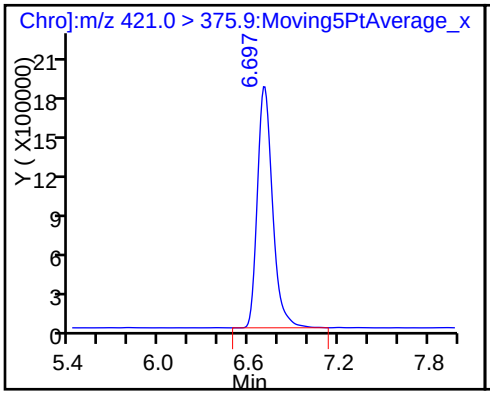
12 Perfluoroheptanesulfonic Acid



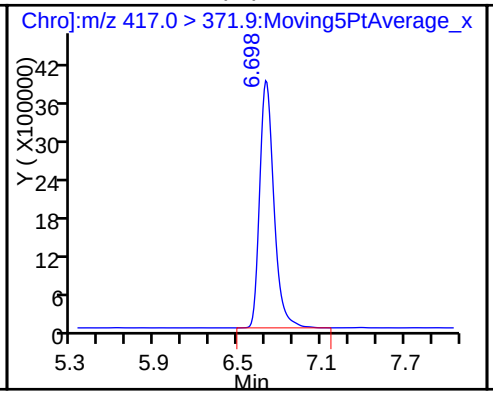
12 Perfluoroheptanesulfonic Acid



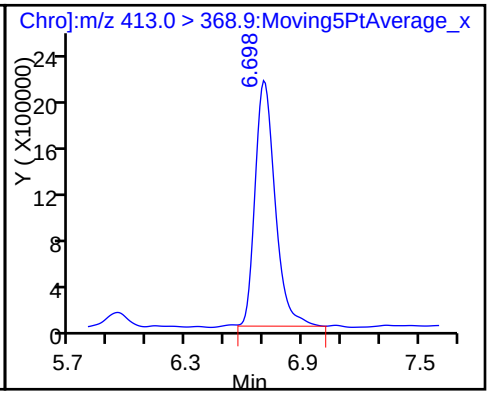
$ 14 13C8 PFOA



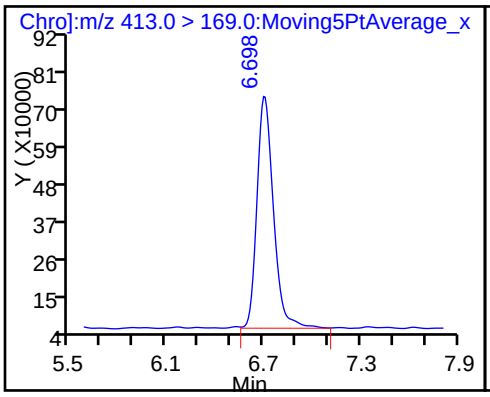
* 15 13C4 PFOA (IS)



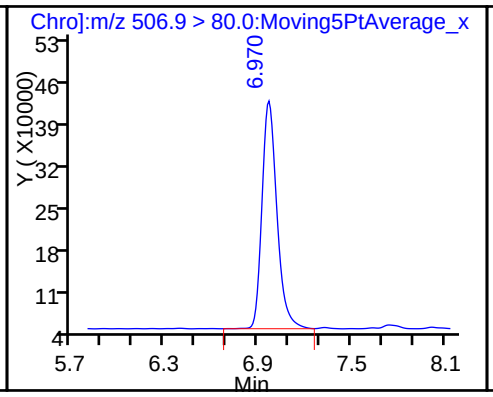
16 Perfluorooctanoic acid



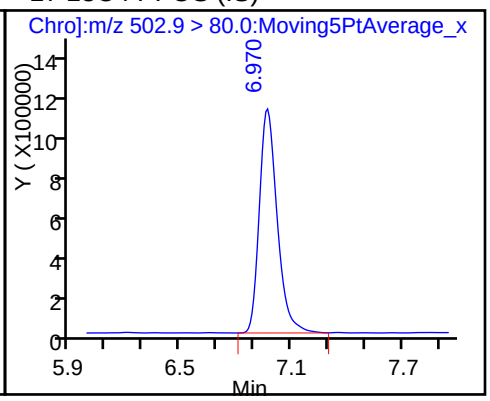
16 Perfluorooctanoic acid



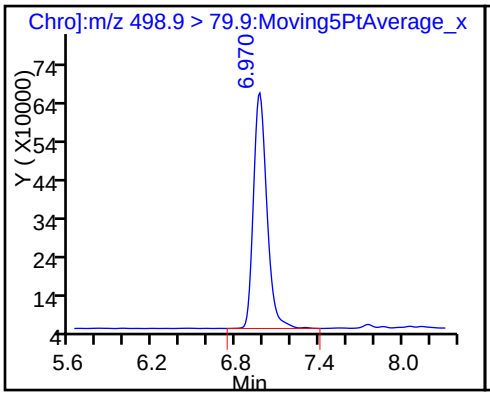
$ 18 13C8 PFOS



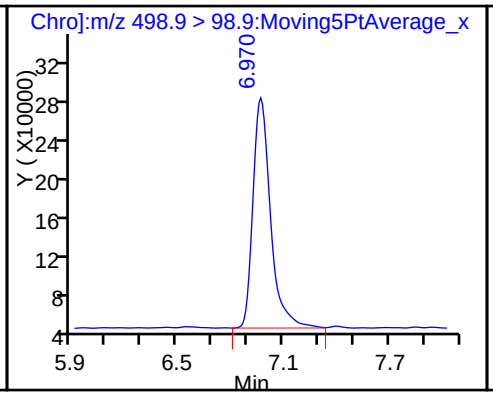
* 17 13C4 PFOS (IS)



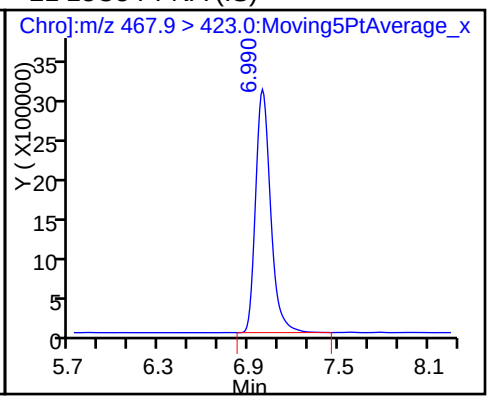
19 Perfluorooctane sulfonic acid



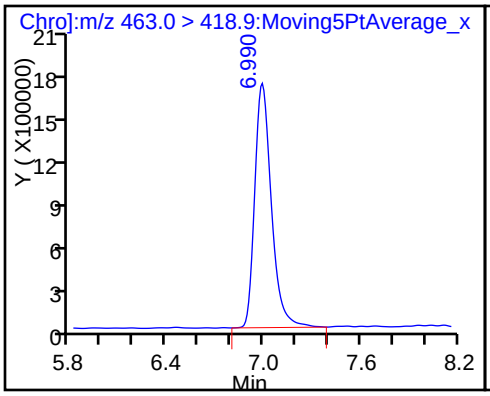
19 Perfluorooctane sulfonic acid



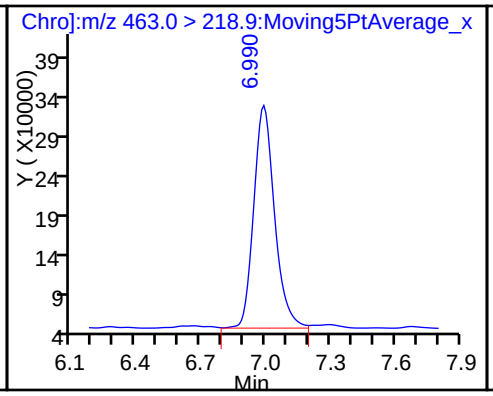
* 21 13C5 PFNA (IS)



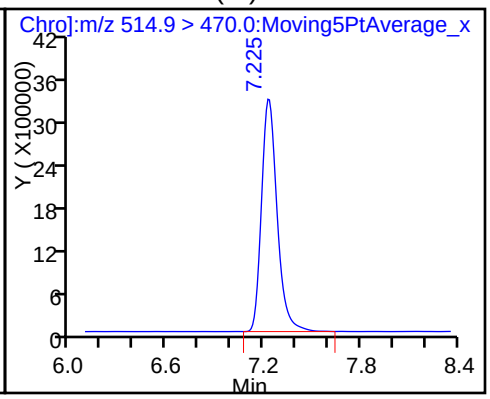
20 Perfluorononanoic acid



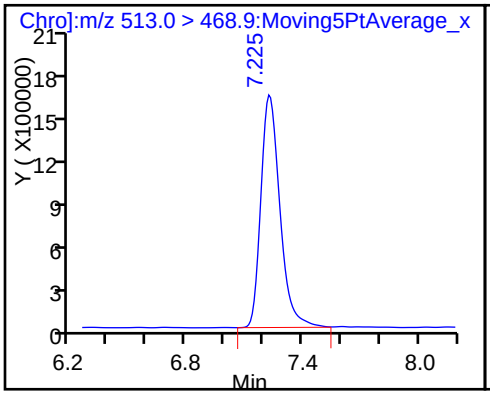
20 Perfluorononanoic acid



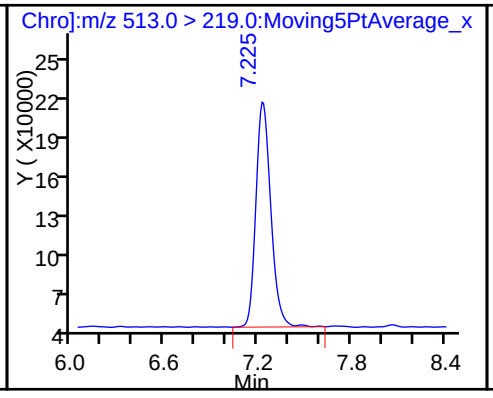
* 22 13C2 PFDA (IS)



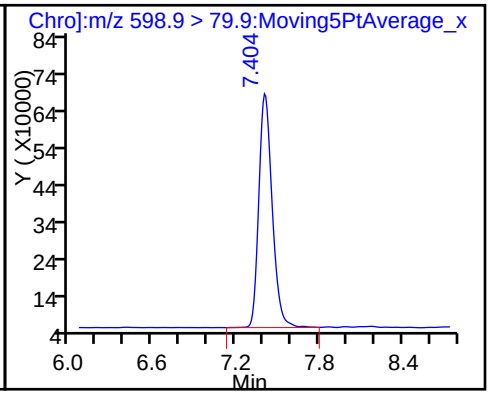
23 Perfluorodecanoic acid



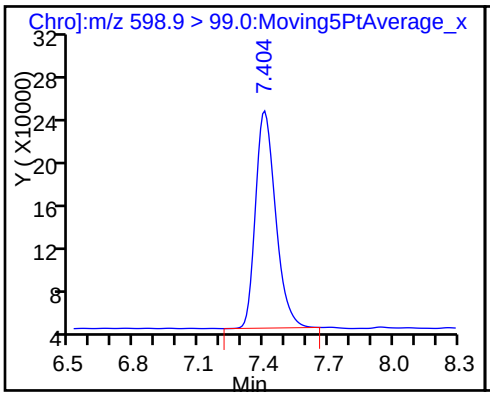
23 Perfluorodecanoic acid



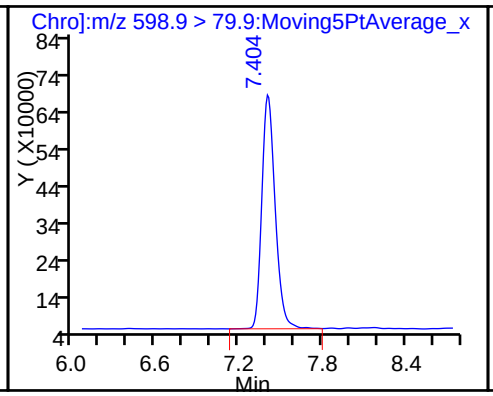
25 Perfluorodecane Sulfonate



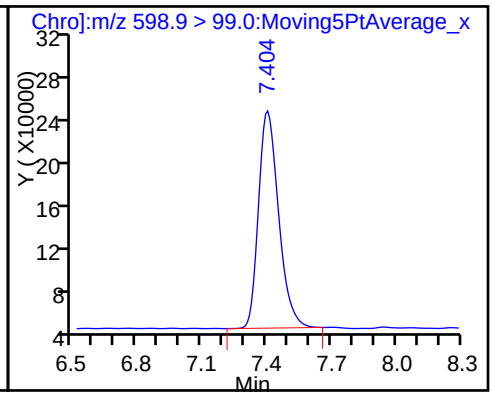
25 Perfluorodecane Sulfonate



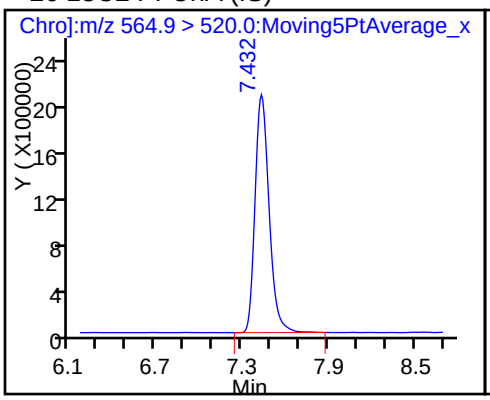
24 Perfluorodecane Sulfonic acid



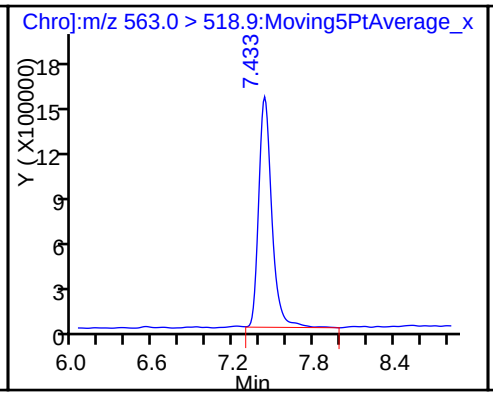
24 Perfluorodecane Sulfonic acid



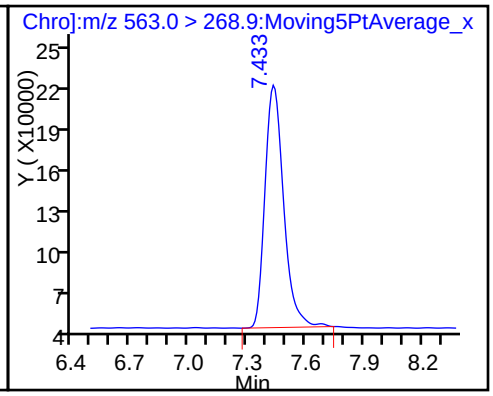
* 26 13C2 PFUnA (IS)



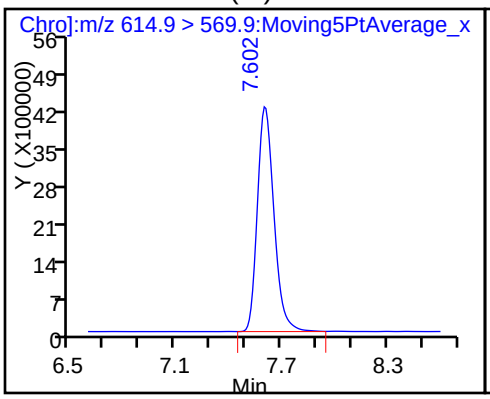
27 Perfluoroundecanoic acid



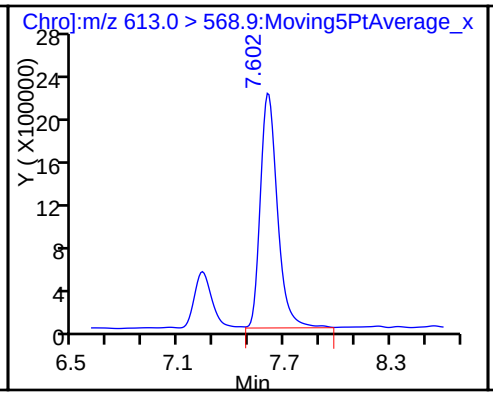
27 Perfluoroundecanoic acid



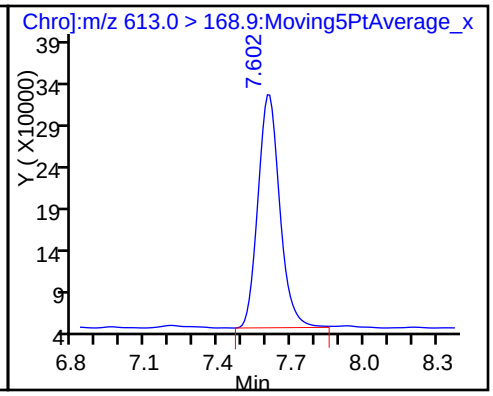
* 28 13C2 PFDoA (IS)



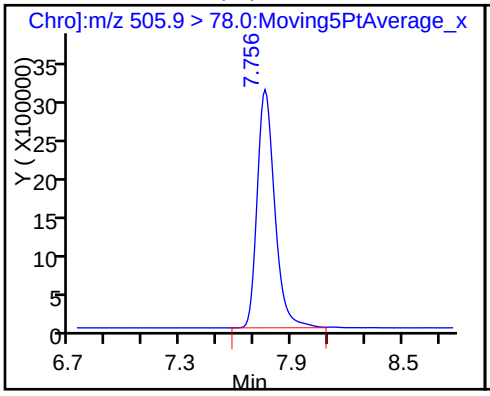
29 Perfluorododecanoic acid



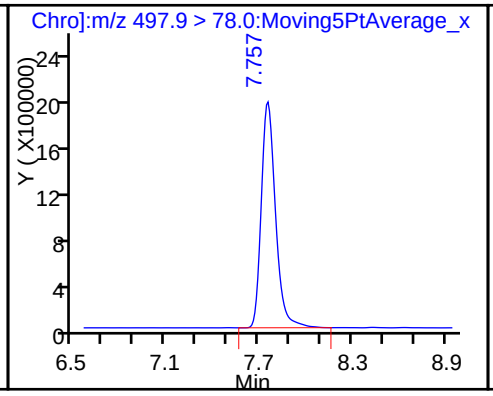
29 Perfluorododecanoic acid



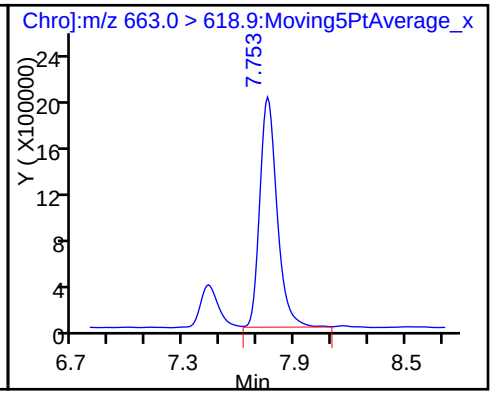
* 31 13C8 FOSA (IS)



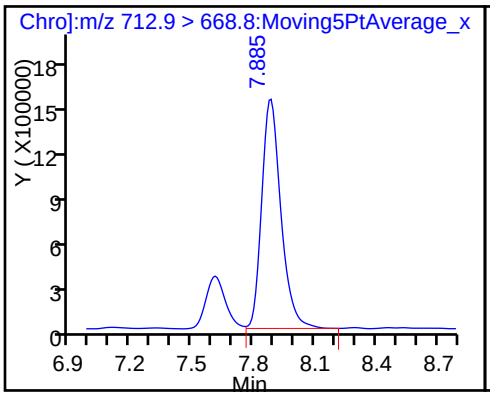
32 Perfluorooctane Sulfonamide



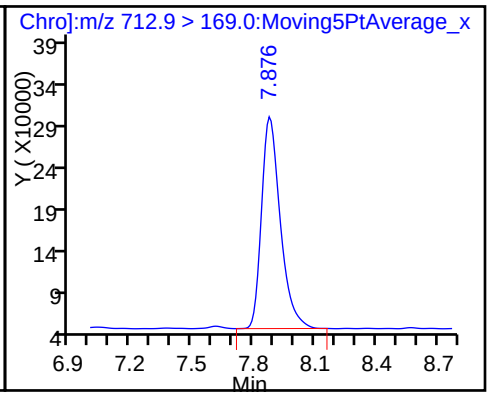
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Lab Sample ID: CCV 280-334166/42 Calibration Date: 07/18/2016 21:18

Instrument ID: LC_LCMS5 Calib Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calib End Date: 06/06/2016 16:28

Lab File ID: PC516G18047.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	Lin2		0.9631		8.98	10.0	-10.2	30.0
Perfluoropentanoic acid (PFPA)	Lin2		1.250		10.6	10.0	6.3	30.0
Perfluorobutane Sulfonate (PFBS)	Lin2		4.572		7.75	8.85	-12.5	30.0
Perfluorobutanesulfonic acid	Lin2		4.572		7.75	8.85	-12.5	30.0
Perfluorohexanoic acid (PFHxA)	Lin2		0.9802		10.4	10.0	3.7	30.0
Perfluoroheptanoic acid (PFHpA)	Lin2		0.9054		10.4	10.0	4.1	30.0
Perfluorohexane Sulfonate (PFHxS)	Lin2		3.993		9.75	9.45	3.2	30.0
Perfluorohexanesulfonic acid	Lin2		3.993		9.75	9.45	3.2	30.0
Perfluoroheptane Sulfonate	Lin2		1.065		8.37	9.52	-12.1	30.0
Perfluoroheptanesulfonic Acid (PFHpS)	Lin2		1.065		8.37	9.52	-12.1	30.0
Perfluorooctanoic acid (PFOA)	Lin2		1.107		10.6	10.0	6.3	30.0
Perfluorooctanesulfonic acid (PFOS)	Lin2		1.068		8.70	9.55	-8.9	30.0
Perfluorononanoic acid (PFNA)	Lin2		1.071		9.55	10.0	-4.5	30.0
Perfluorodecanoic acid (PFDA)	Lin2		1.008		10.0	10.0	0.0	30.0
Perfluorodecane sulfonate (PFDS)	Lin2		1.031		8.04	9.65	-16.7	30.0
Perfluorodecane Sulfonic acid	Lin2		1.031		8.04	9.65	-16.7	30.0
Perfluoroundecanoic acid (PFUnA)	Lin2		1.332		9.39	10.0	-6.1	30.0
Perfluorododecanoic acid (PFDoA)	Lin2		1.015		9.88	10.0	-1.2	30.0
Perfluorotridecanoic Acid (PFTriA)	Lin2		0.8820		9.48	10.0	-5.2	30.0
Perfluorooctane Sulfonamide (FOSA)	Lin2		1.093		10.1	10.0	0.7	30.0
Perfluorotetradecanoic acid (PFTeA)	Lin2		0.7009		11.9	10.0	18.6	30.0
13C8 PFOA	Lin2		0.8277		10.2	10.0	2.4	30.0
13C8 PFOS	Lin2		0.5772		9.02	9.56	-5.6	30.0

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18047.d
Lims ID: CCV PFC L6
Client ID:
Sample Type: CCV
Inject. Date: 18-Jul-2016 21:18:43 ALS Bottle#: 0 Worklist Smp#: 42
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: CCV PFC L6, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 19-Jul-2016 15:53:35 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK035

First Level Reviewer: fiedlerh Date: 19-Jul-2016 14:19:12

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.276	4.276	0.0		29756750	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	4.276	4.276	0.0	1.000	28657363	8.98			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.318	5.318	0.0	0.902	21507473	10.6			
4 Perfluorobutane Sulfonate									R
298.9 > 79.9	5.431	5.431	0.0	0.858	9268636	7.75			R
298.9 > 98.9	5.431	5.431	0.0	0.858	2637035		3.51(1.80-3.35)		
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.431	5.431	0.0	0.858	9268636	7.75			
298.9 > 98.9	5.431	5.431	0.0	0.858	2637035		3.51(2.57-2.57)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.894	5.894	0.0		17200070	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.894	5.894	0.0	1.000	16859164	10.4			
313.0 > 118.6	5.894	5.894	0.0	1.000	456371		36.94(34.05-63.23)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.320	6.320	0.0	0.948	24001943	10.4			
363.0 > 168.9	6.320	6.320	0.0	0.948	6077685		3.95(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.329	6.329	0.0		2167079	9.46			
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.320	6.320	0.0	0.999	8643077	9.75			
398.9 > 98.9	6.329	6.320	0.009	1.000	2719743		3.18(1.85-1.85)		
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.320	6.320	0.0	0.999	8643077	9.75			R
398.9 > 98.9	6.329	6.320	0.009	1.000	2719743		3.18(1.30-2.41)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.650	6.650	0.0	0.959	8447998	8.37			
449.0 > 98.9	6.650	6.650	0.0	0.959	2738489		3.08(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.650	6.650	0.0	0.959	8447998	8.37			
449.0 > 98.9	6.650	6.650	0.0	0.959	2738489		3.08(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.660	6.660	0.0	0.999	21942758	10.2			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.669	6.669	0.0		26511189	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.660	6.660	0.0	0.999	29353592	10.6			
413.0 > 169.0	6.660	6.660	0.0	0.999	9576723		3.07(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.932	6.932	0.0	1.000	4597126	9.02			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.932	6.932	0.0		7965260	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.932	6.932	0.0	1.000	8498533	8.70			R
498.9 > 98.9	6.932	6.932	0.0	1.000	3196791		2.66(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.952	6.952	0.0		21655694	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.952	6.952	0.0	1.000	23199643	9.55			
463.0 > 218.9	6.952	6.952	0.0	1.000	3261540		7.11(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.196	7.196	0.0		22062987	10.0			
23 Perfluorodecanoic acid									R
513.0 > 468.9	7.197	7.197	0.0	1.000	22240705	10.0			R
513.0 > 219.0	7.187	7.197	-0.010	0.999	2296710		9.68(10.49-19.48)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.375	7.375	0.0	1.064	8292844	8.04			
598.9 > 99.0	7.375	7.375	0.0	1.064	2679614		3.09(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.375	7.375	0.0	1.064	8292844	8.04			
598.9 > 99.0	7.375	7.375	0.0	1.064	2679614		3.09(2.84-2.84)		
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.404	7.404	0.0	1.001	18557578	9.39			R
563.0 > 268.9	7.395	7.404	-0.009	1.000	2584367		7.18(3.47-6.45)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.395	7.395	0.0		13935186	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.573	7.573	0.0		28939047	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.574	7.574	0.0	1.000	29364808	9.88			
613.0 > 168.9	7.574	7.574	0.0	1.000	3560589		8.25(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.728	7.728	0.0		23432184	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.729	7.729	0.0	1.000	25606036	10.1			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.725	7.725	0.0	1.020	25525289	9.48			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.847	7.847	0.0	1.036	20284017	11.9			
712.9 > 169.0	7.847	7.847	0.0	1.036	3108565		6.53(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Reagents:

PFC-LCS_00078	Amount Added: 20.00	Units: uL
PFC_Surr_00021	Amount Added: 20.00	Units: uL
PFC-IS_00021	Amount Added: 20.00	Units: uL

Report Date: 19-Jul-2016 15:53:36 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18047.d

Injection Date: 18-Jul-2016 21:18:43 Instrument ID: LC_LCMS5

Lims ID: CCV PFC L6

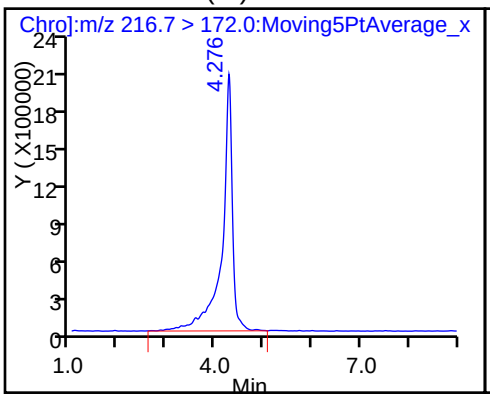
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 42

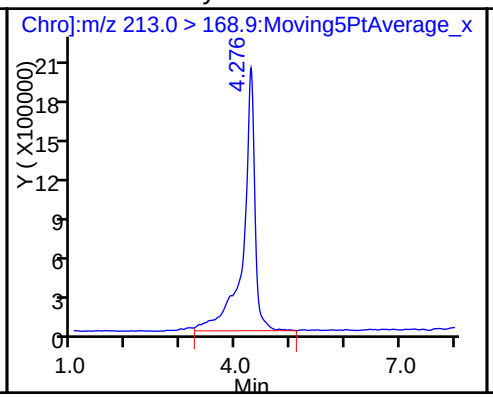
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

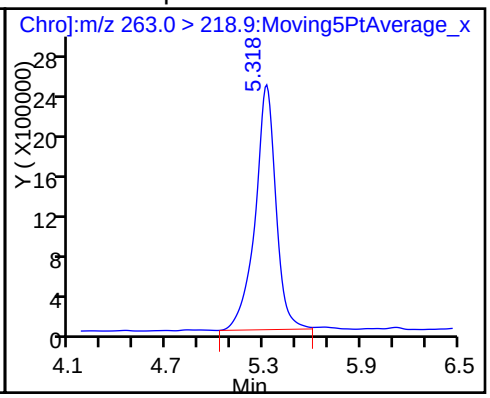
* 1 13C4 PFBA (IS)



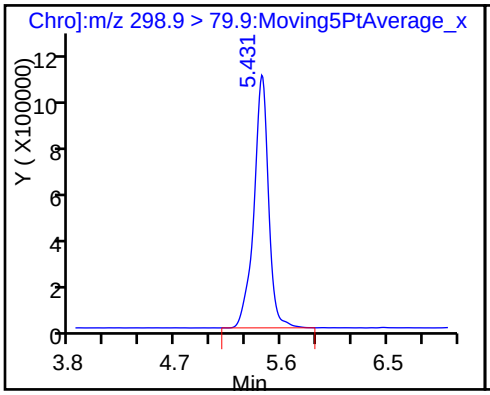
2 Perfluorobutyric acid



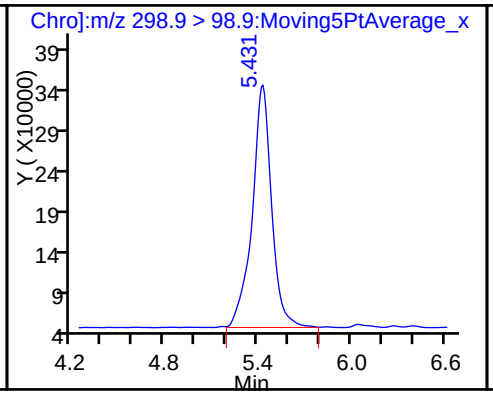
3 Perfluoropentanoic acid



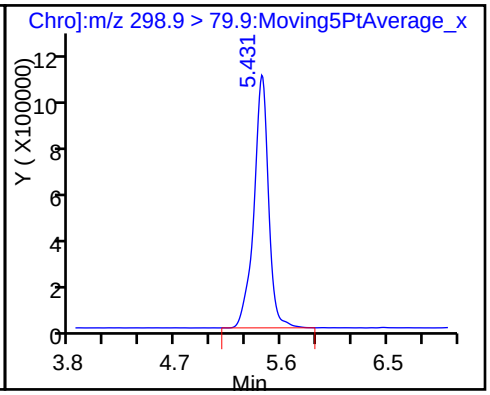
4 Perfluorobutane Sulfonate



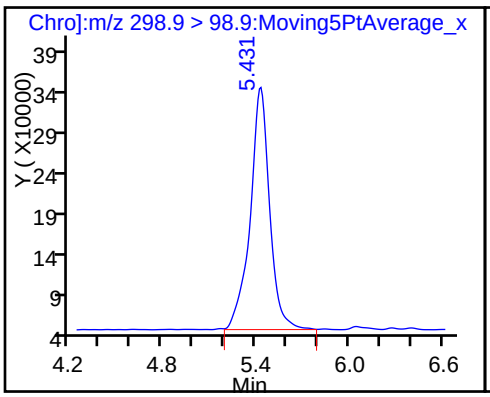
4 Perfluorobutane Sulfonate



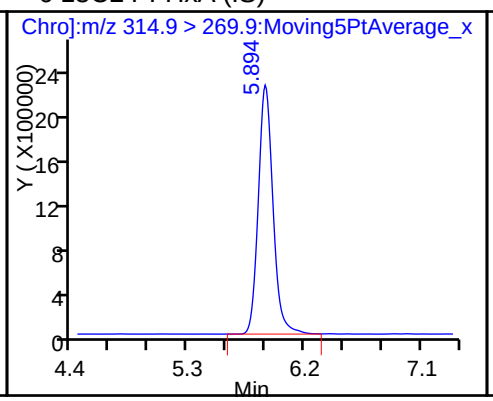
5 Perfluorobutanesulfonic acid



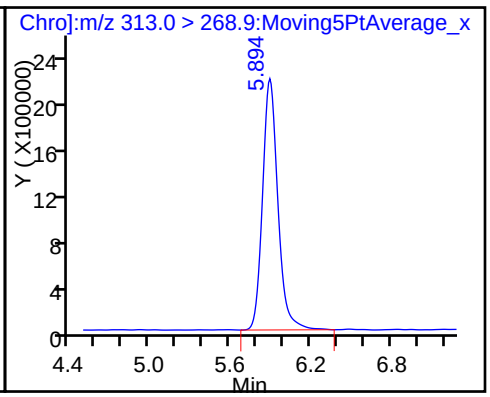
5 Perfluorobutanesulfonic acid



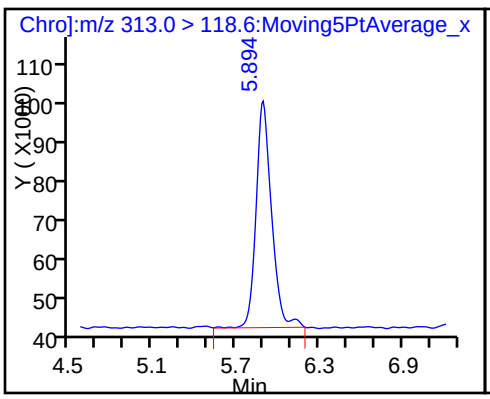
* 6 13C2 PFHxA (IS)



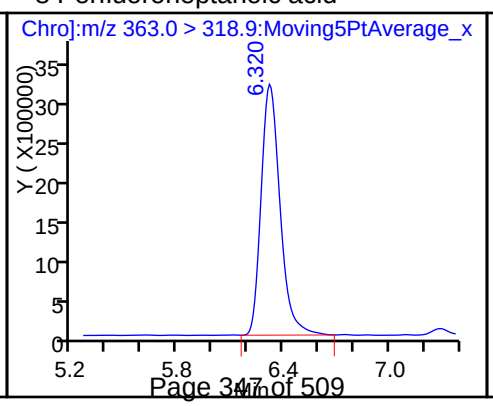
7 Perfluorohexanoic acid



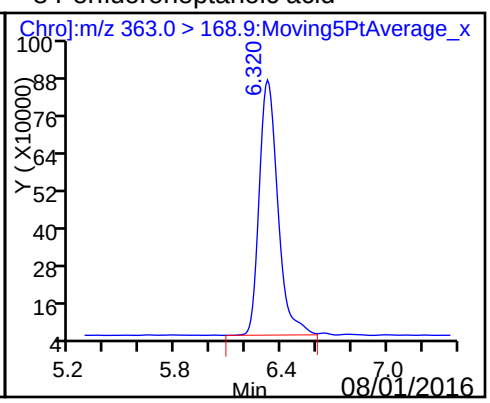
7 Perfluorohexanoic acid



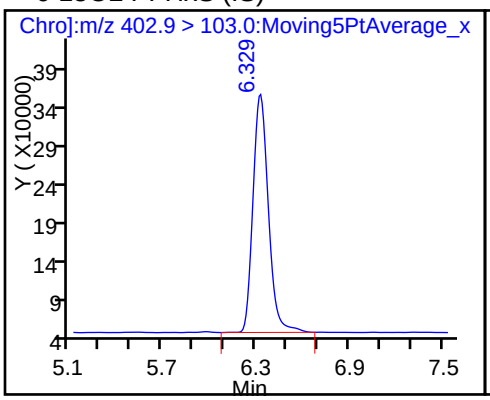
8 Perfluoroheptanoic acid



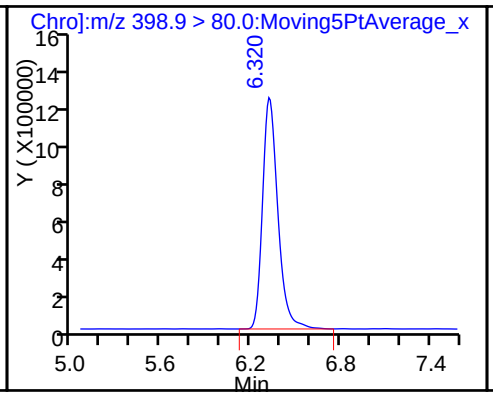
8 Perfluoroheptanoic acid



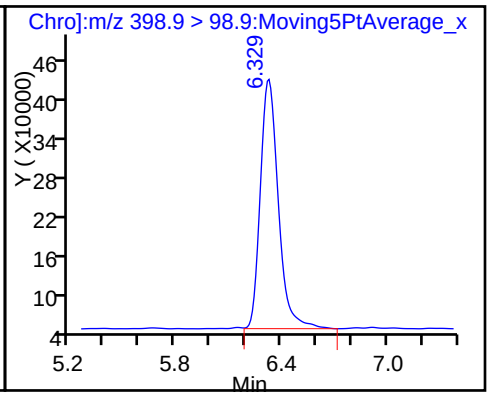
* 9 18O2 PFHxS (IS)



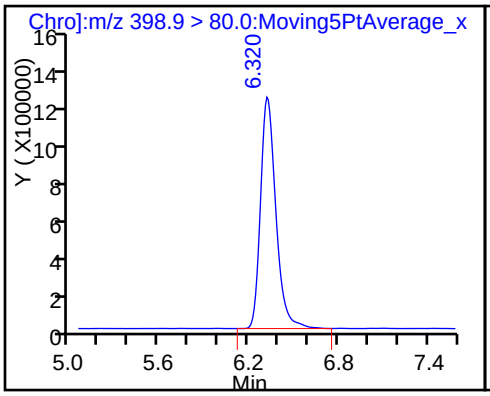
11 Perfluorohexanesulfonic acid



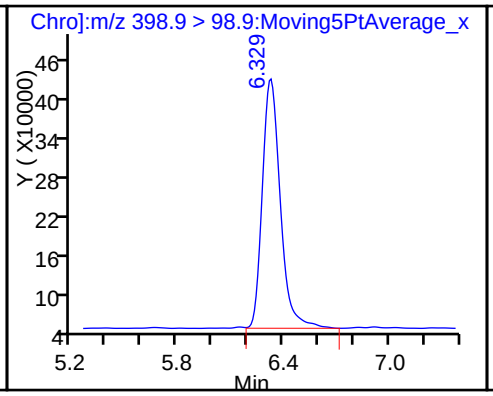
11 Perfluorohexanesulfonic acid



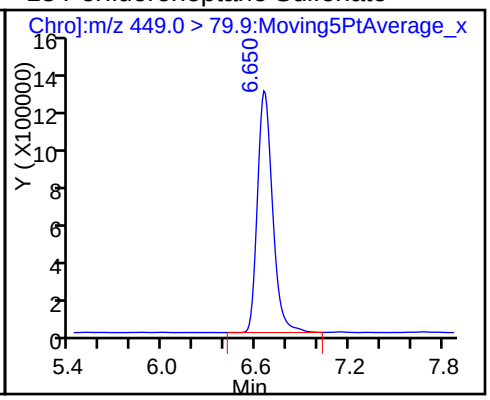
10 Perfluorohexane Sulfonate



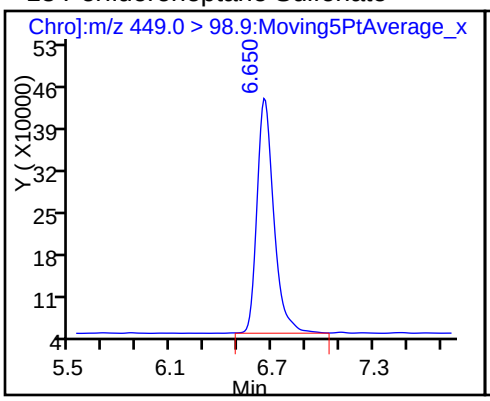
10 Perfluorohexane Sulfonate



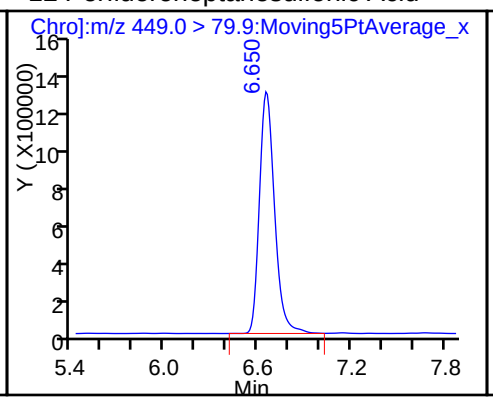
13 Perfluoroheptane Sulfonate



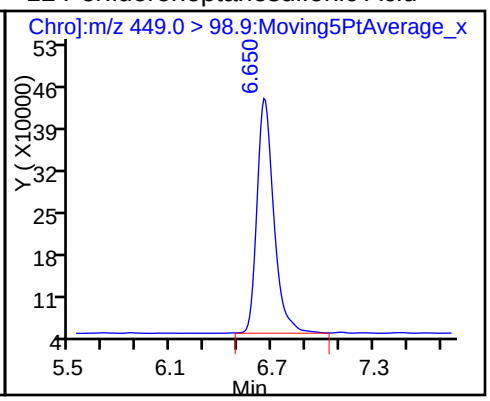
13 Perfluoroheptane Sulfonate



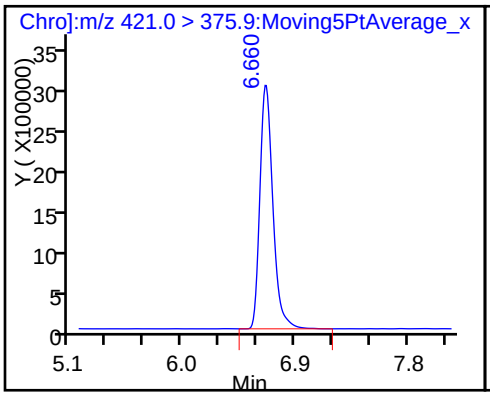
12 Perfluoroheptanesulfonic Acid



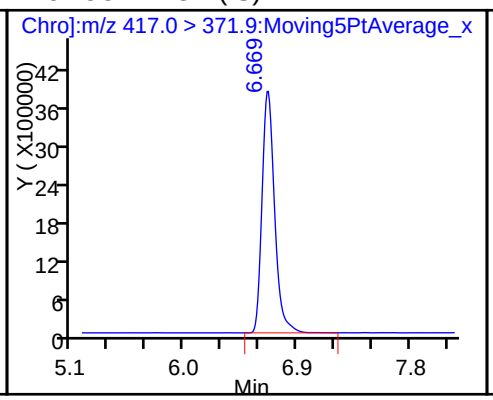
12 Perfluoroheptanesulfonic Acid



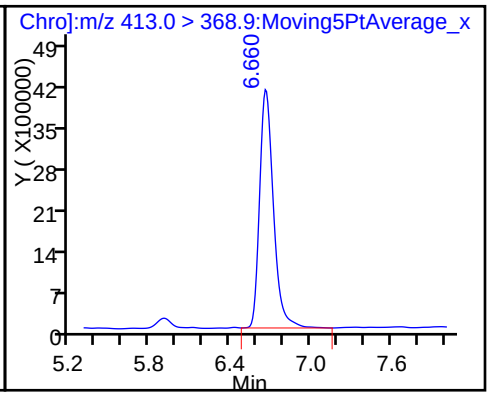
$ 14 13C8 PFOA



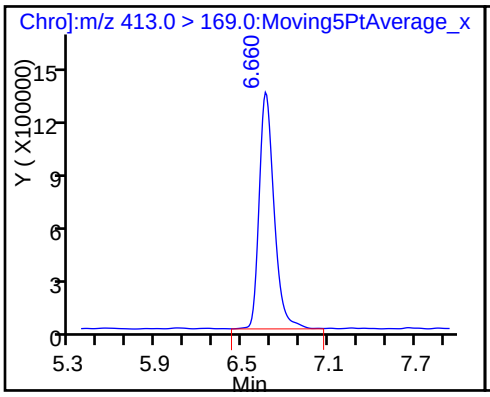
* 15 13C4 PFOA (IS)



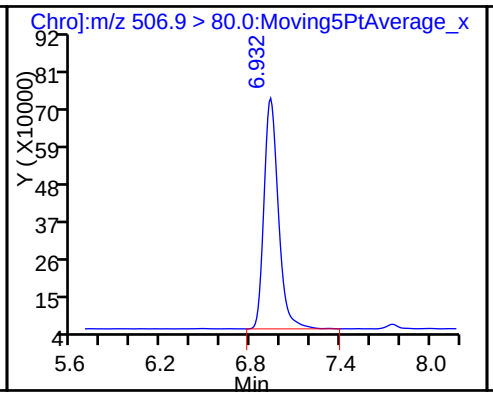
16 Perfluorooctanoic acid



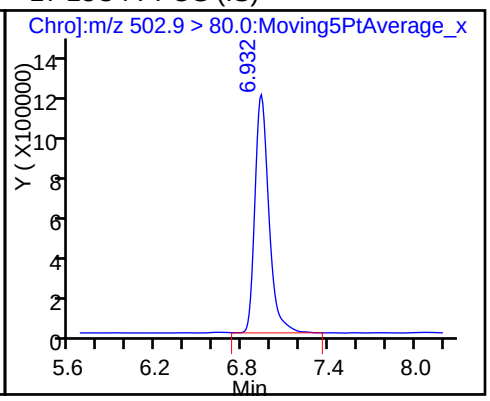
16 Perfluorooctanoic acid



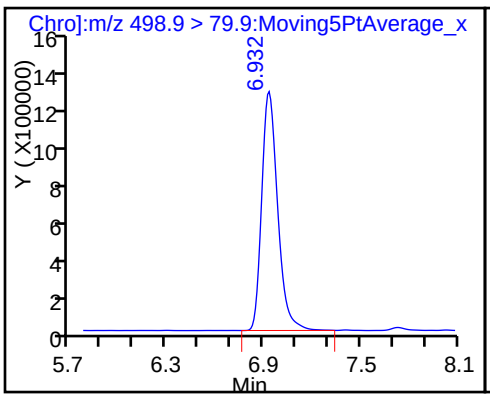
$ 18 13C8 PFOS



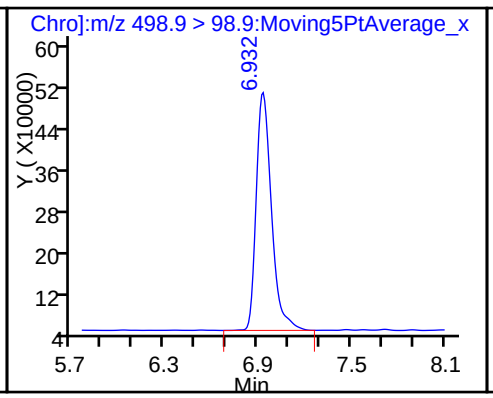
* 17 13C4 PFOS (IS)



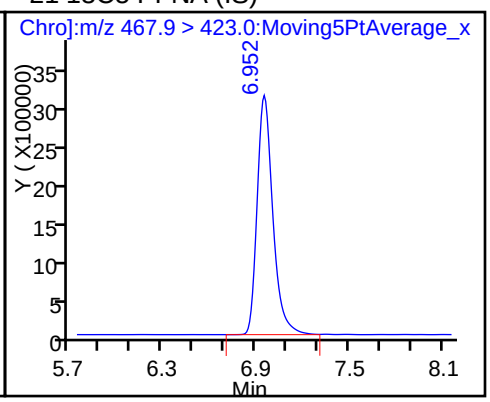
19 Perfluorooctane sulfonic acid



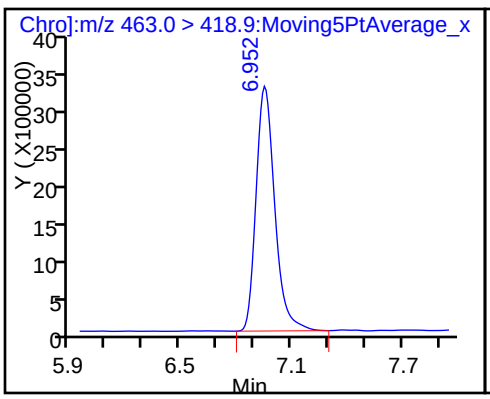
19 Perfluorooctane sulfonic acid



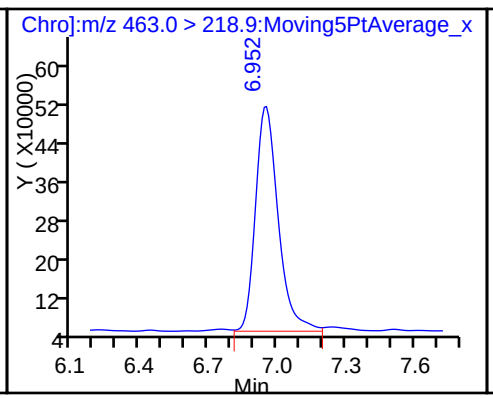
* 21 13C5 PFNA (IS)



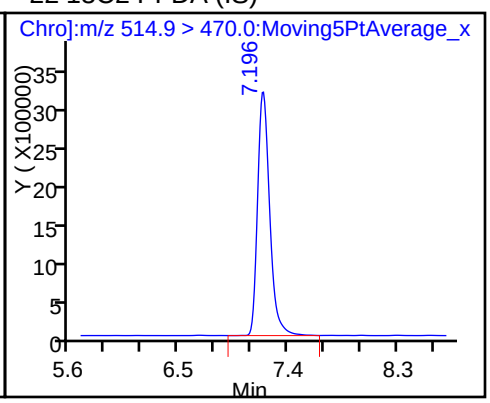
20 Perfluorononanoic acid



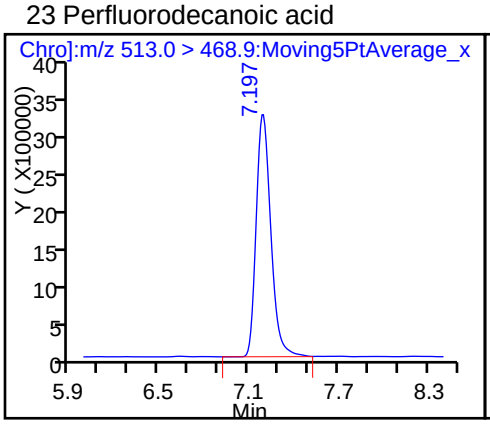
20 Perfluorononanoic acid



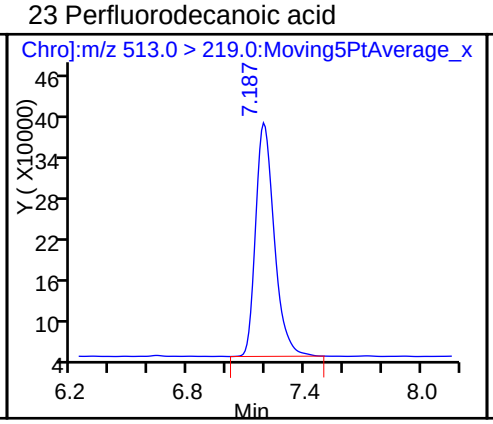
* 22 13C2 PFDA (IS)



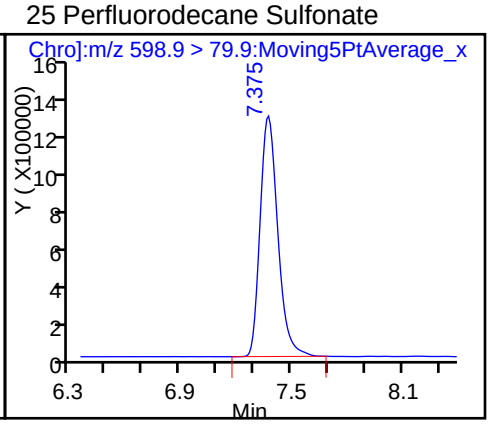
23 Perfluorodecanoic acid



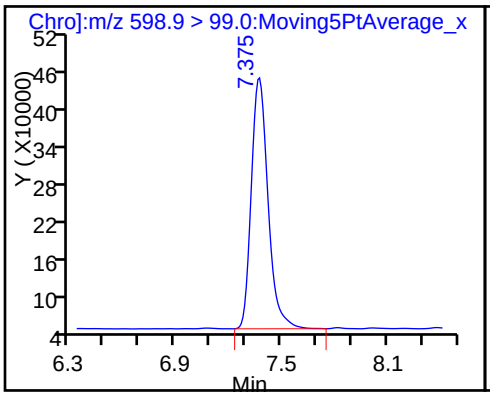
23 Perfluorodecanoic acid



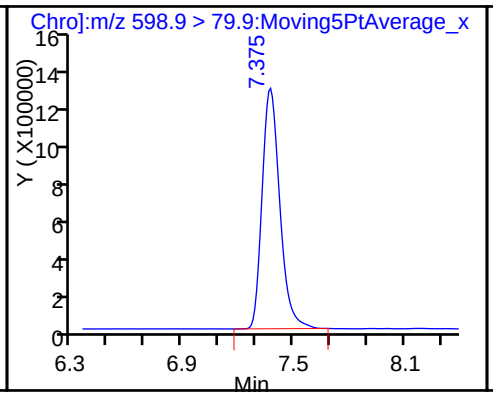
25 Perfluorodecane Sulfonate



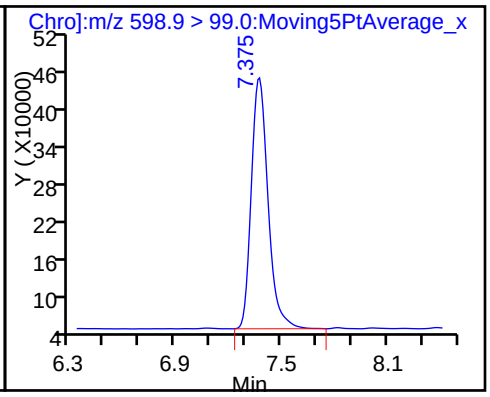
25 Perfluorodecane Sulfonate



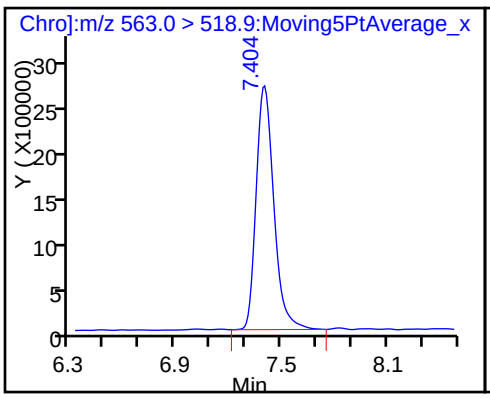
24 Perfluorodecane Sulfonic acid



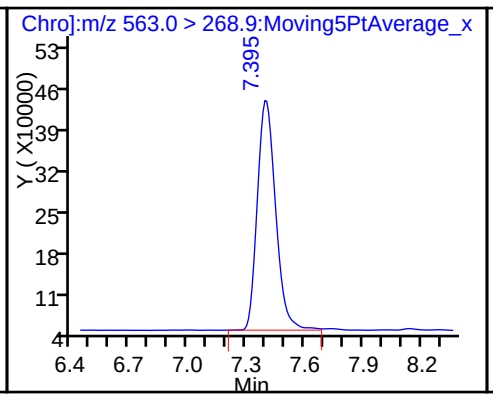
24 Perfluorodecane Sulfonic acid



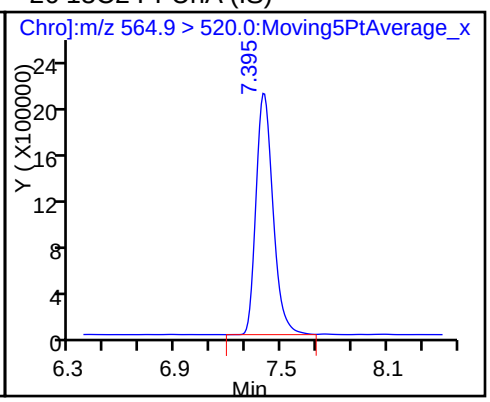
27 Perfluoroundecanoic acid



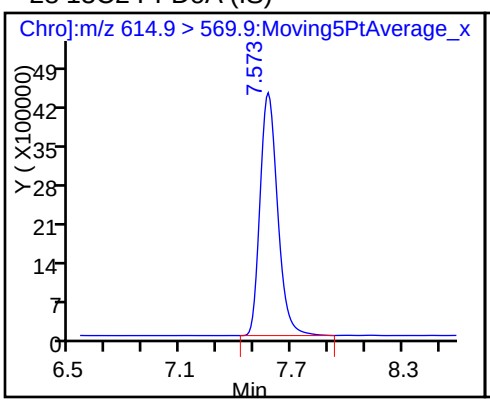
27 Perfluoroundecanoic acid



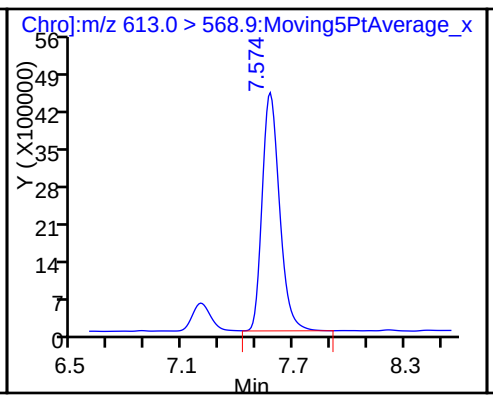
* 26 13C2 PFUnA (IS)



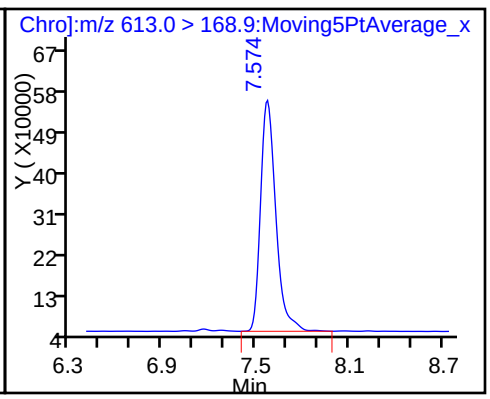
* 28 13C2 PFDoA (IS)



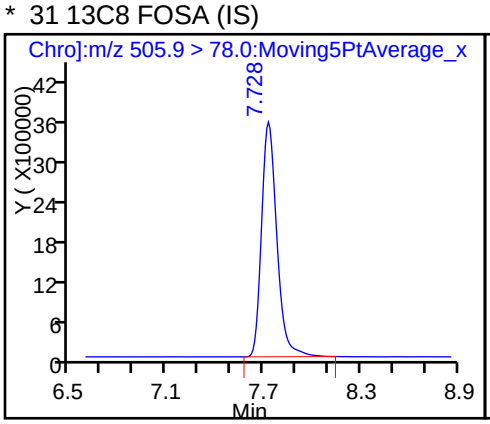
29 Perfluorododecanoic acid



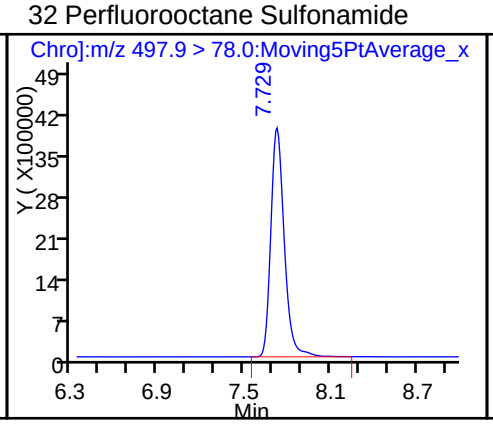
29 Perfluorododecanoic acid



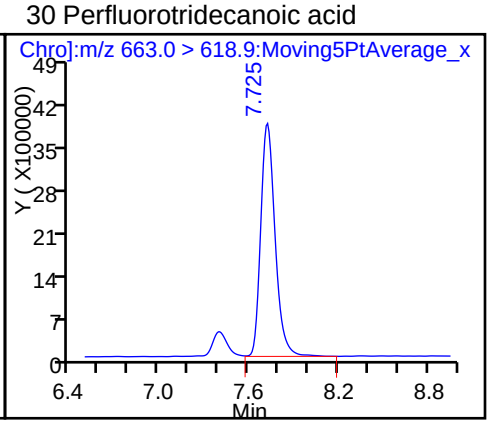
* 31 13C8 FOSA (IS)



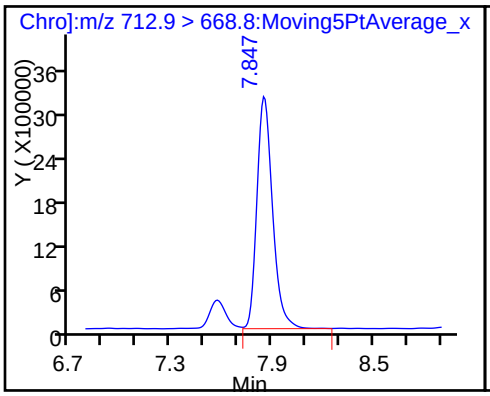
32 Perfluorooctane Sulfonamide



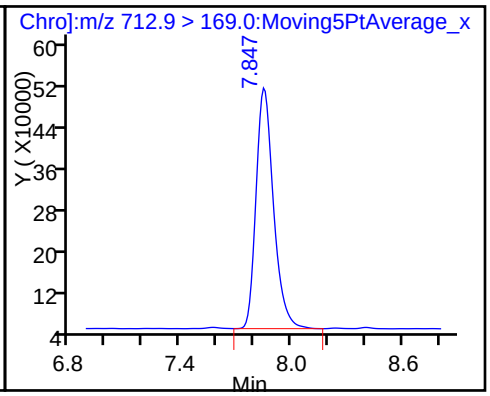
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Lab Sample ID: CCV 280-334166/53 Calibration Date: 07/18/2016 23:34

Instrument ID: LC_LCMS5 Calib Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calib End Date: 06/06/2016 16:28

Lab File ID: PC516G18058.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	Lin2		1.003		4.68	5.00	-6.5	30.0
Perfluoropentanoic acid (PFPA)	Lin2		1.410		5.98	5.00	19.6	30.0
Perfluorobutane Sulfonate (PFBS)	Lin2		4.496		3.81	4.43	-13.8	30.0
Perfluorobutanesulfonic acid	Lin2		4.496		3.81	4.43	-13.8	30.0
Perfluorohexanoic acid (PFHxA)	Lin2		1.034		5.46	5.00	9.2	30.0
Perfluoroheptanoic acid (PFHpA)	Lin2		0.9314		5.34	5.00	6.8	30.0
Perfluorohexane Sulfonate (PFHxS)	Lin2		4.090		4.95	4.73	4.8	30.0
Perfluorohexanesulfonic acid	Lin2		4.090		4.95	4.73	4.8	30.0
Perfluoroheptane Sulfonate	Lin2		1.027		4.04	4.76	-15.1	30.0
Perfluoroheptanesulfonic Acid (PFHpS)	Lin2		1.027		4.04	4.76	-15.1	30.0
Perfluorooctanoic acid (PFOA)	Lin2		1.134		5.41	5.00	8.2	30.0
Perfluorooctanesulfonic acid (PFOS)	Lin2		1.110		4.48	4.78	-6.1	30.0
Perfluorononanoic acid (PFNA)	Lin2		1.090		4.84	5.00	-3.3	30.0
Perfluorodecanoic acid (PFDA)	Lin2		1.034		5.11	5.00	2.3	30.0
Perfluorodecane sulfonate (PFDS)	Lin2		1.118		4.34	4.83	-10.0	30.0
Perfluorodecane Sulfonic acid	Lin2		1.118		4.34	4.83	-10.0	30.0
Perfluoroundecanoic acid (PFUnA)	Lin2		1.493		5.24	5.00	4.8	30.0
Perfluorododecanoic acid (PFDoA)	Lin2		1.096		5.31	5.00	6.1	30.0
Perfluorotridecanoic Acid (PFTriA)	Lin2		0.9682		5.17	5.00	3.3	30.0
Perfluorooctane Sulfonamide (FOSA)	Lin2		1.122		5.16	5.00	3.2	30.0
Perfluorotetradecanoic acid (PFTeA)	Lin2		0.7422		6.28	5.00	25.5	30.0
13C8 PFOA	Lin2		0.9249		5.70	5.00	14.0	30.0
13C8 PFOS	Lin2		0.6302		4.91	4.78	2.8	30.0

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18058.d
Lims ID: CCV PFC L5
Client ID:
Sample Type: CCV
Inject. Date: 18-Jul-2016 23:34:11 ALS Bottle#: 0 Worklist Smp#: 53
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: CCV PFC L5, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 19-Jul-2016 15:54:04 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK035

First Level Reviewer: fiedlerh Date: 19-Jul-2016 14:29:24

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.209	4.209	0.0		28011582	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	4.210	4.210	0.0	1.000	14043826	4.68			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.261	5.261	0.0	0.901	11748852	5.98			
4 Perfluorobutane Sulfonate									R
298.9 > 79.9	5.383	5.383	0.0	0.860	4553016	3.81			R
298.9 > 98.9	5.374	5.383	-0.009	0.858	1335468		3.41(1.80-3.35)		
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.383	5.383	0.0	0.860	4553016	3.81			
298.9 > 98.9	5.374	5.383	-0.009	0.858	1335468		3.41(2.57-2.57)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.837	5.837	0.0		16670099	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.838	5.838	0.0	1.000	8622230	5.46			
313.0 > 118.6	5.838	5.838	0.0	1.000	232598		37.07(34.05-63.23)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.263	6.263	0.0	0.949	12609455	5.34			
363.0 > 168.9	6.263	6.263	0.0	0.949	3337197		3.78(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.263	6.263	0.0		2165056	9.46			
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.272	6.272	0.0	1.002	4422708	4.95			
398.9 > 98.9	6.263	6.272	-0.009	1.000	1374555		3.22(1.85-1.85)		
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.272	6.272	0.0	1.002	4422708	4.95			R
398.9 > 98.9	6.263	6.272	-0.009	1.000	1374555		3.22(1.30-2.41)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.593	6.593	0.0	0.959	4028738	4.04			
449.0 > 98.9	6.593	6.593	0.0	0.959	1353501		2.98(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.593	6.593	0.0	0.959	4028738	4.04			
449.0 > 98.9	6.593	6.593	0.0	0.959	1353501		2.98(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.603	6.603	0.0	1.000	12521524	5.70			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.603	6.603	0.0		27075760	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.603	6.603	0.0	1.000	15355285	5.41			
413.0 > 169.0	6.613	6.603	0.010	1.001	5220638		2.94(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.875	6.875	0.0	1.000	2482403	4.91			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.875	6.875	0.0		7877665	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9	6.876	6.876	0.0	1.000	4366925	4.48			
498.9 > 98.9	6.876	6.876	0.0	1.000	1816822		2.40(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.895	6.895	0.0		22561158	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.895	6.895	0.0	1.000	12298027	4.84			
463.0 > 218.9	6.886	6.895	-0.009	0.999	1867085		6.59(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.140	7.140	0.0		22493518	10.0			
23 Perfluorodecanoic acid									R
513.0 > 468.9	7.140	7.140	0.0	1.000	11625205	5.11			R
513.0 > 219.0	7.140	7.140	0.0	1.000	1403273		8.28(10.49-19.48)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.318	7.318	0.0	1.064	4446094	4.34			
598.9 > 99.0	7.318	7.318	0.0	1.064	1420675		3.13(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.318	7.318	0.0	1.064	4446094	4.34			
598.9 > 99.0	7.318	7.318	0.0	1.064	1420675		3.13(2.84-2.84)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.347	7.347	0.0		13589960	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.347	7.347	0.0	1.000	10143378	5.24			R
563.0 > 268.9	7.347	7.347	0.0	1.000	1303142		7.78(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.526	7.526	0.0		28515542	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.526	7.526	0.0	1.000	15625430	5.31			
613.0 > 168.9	7.526	7.526	0.0	1.000	1845588		8.47(5.96-11.06)		
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.668	7.668	0.0	1.019	13804868	5.17			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.671	7.671	0.0		23070835	10.0			
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.672	7.672	0.0	1.000	12941570	5.16			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.800	7.800	0.0	1.036	10581724	6.28			
712.9 > 169.0	7.800	7.800	0.0	1.036	1459765		7.25(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Reagents:

PFC-IS_00021	Amount Added:	20.00	Units: uL
PFC_Surr_00021	Amount Added:	10.00	Units: uL
PFC-LCS_00078	Amount Added:	10.00	Units: uL

Report Date: 19-Jul-2016 15:54:05 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18058.d

Injection Date: 18-Jul-2016 23:34:11 Instrument ID: LC_LCMS5

Lims ID: CCV PFC L5

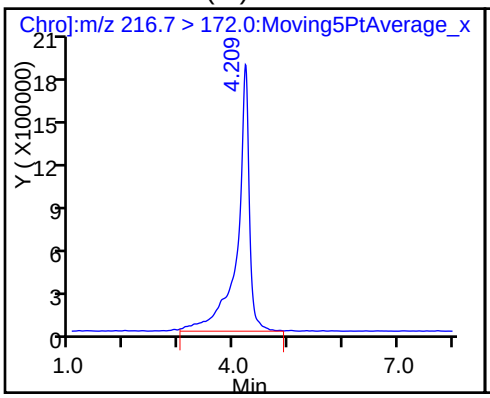
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 53

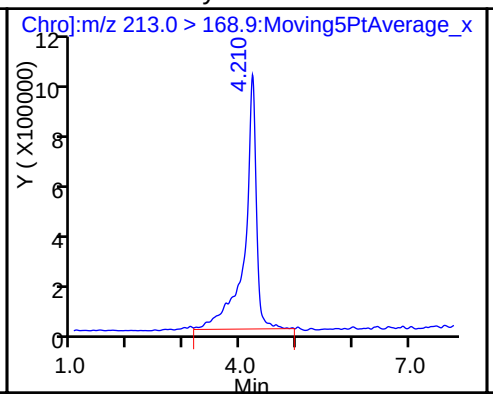
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

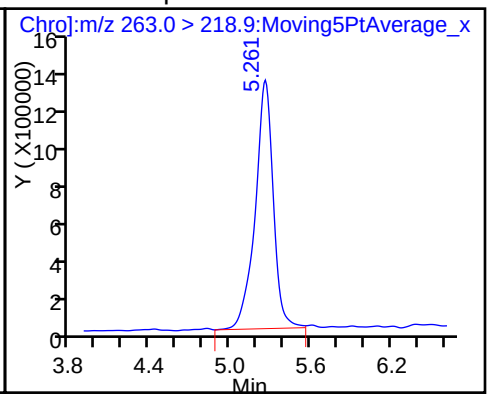
* 1 13C4 PFBA (IS)



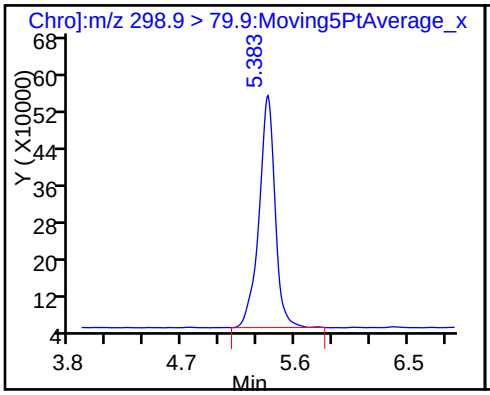
2 Perfluorobutyric acid



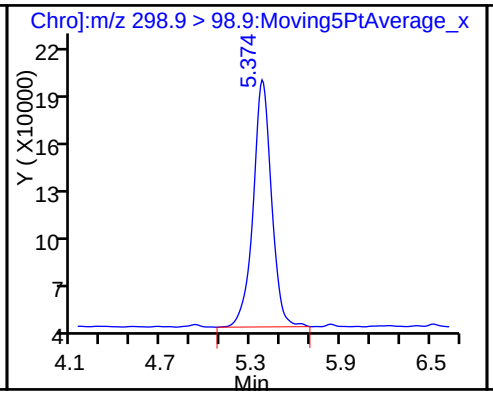
3 Perfluoropentanoic acid



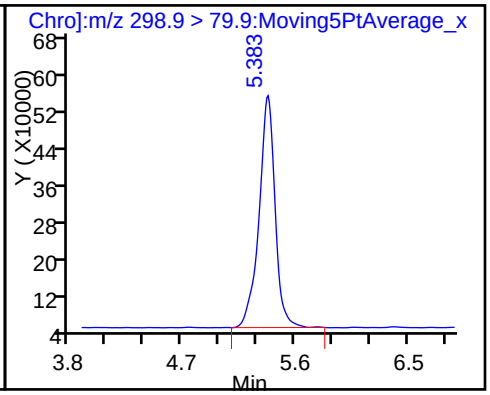
4 Perfluorobutane Sulfonate



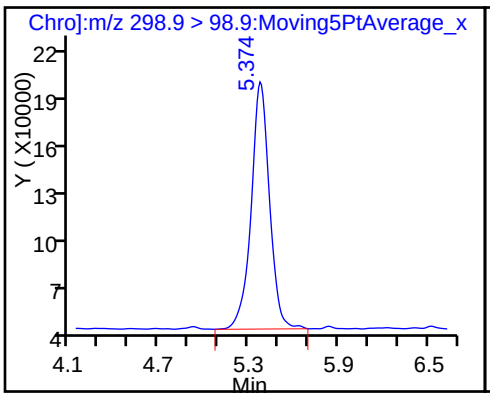
4 Perfluorobutane Sulfonate



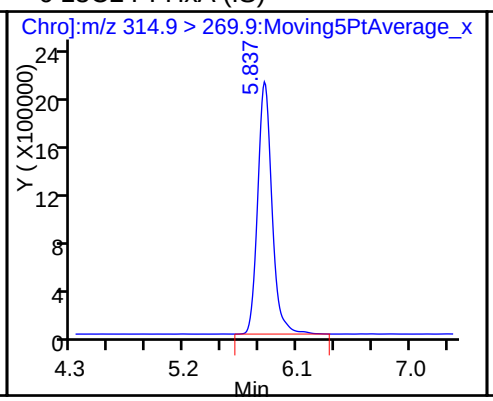
5 Perfluorobutanesulfonic acid



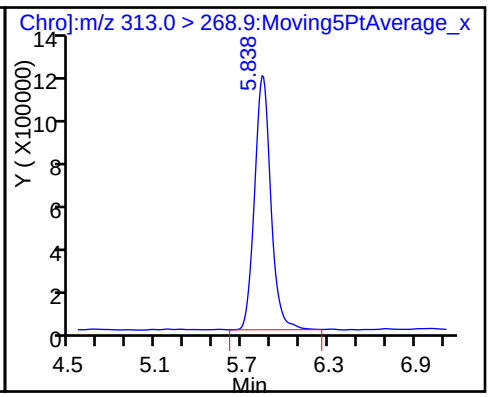
5 Perfluorobutanesulfonic acid



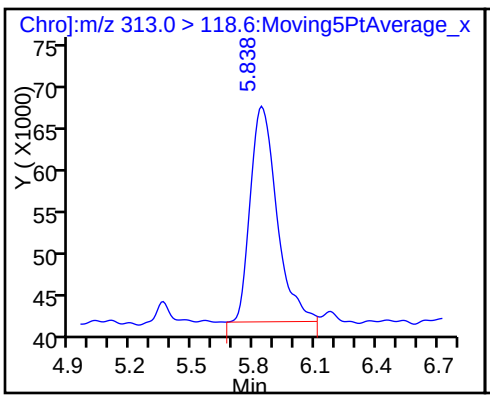
* 6 13C2 PFHxA (IS)



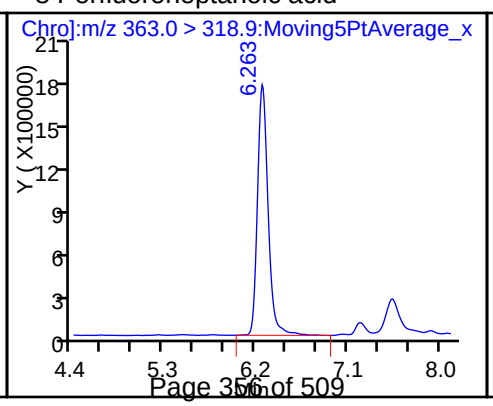
7 Perfluorohexanoic acid



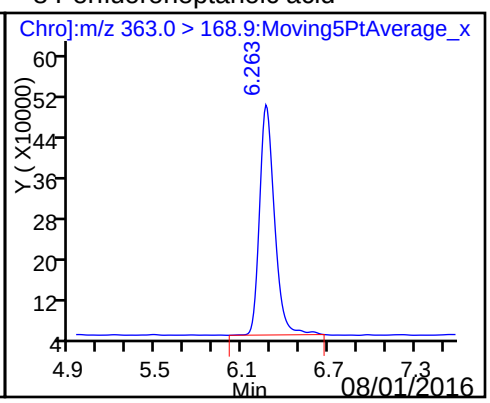
7 Perfluorohexanoic acid



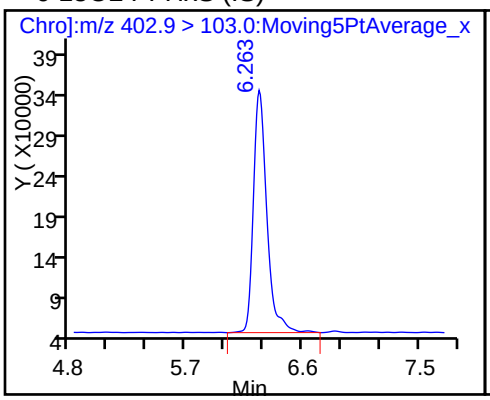
8 Perfluoroheptanoic acid



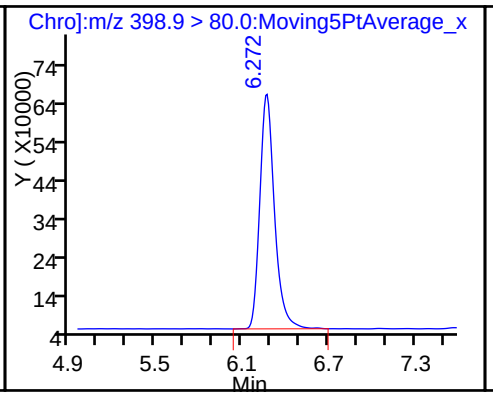
8 Perfluoroheptanoic acid



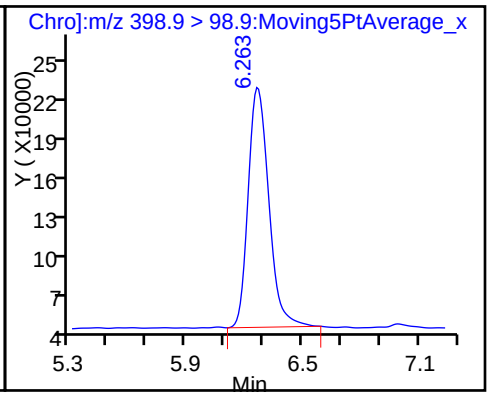
* 9 18O2 PFHxS (IS)



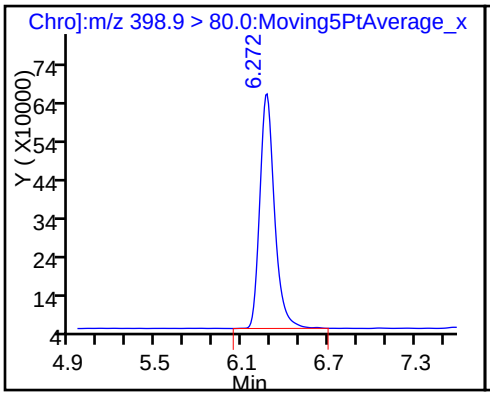
11 Perfluorohexanesulfonic acid



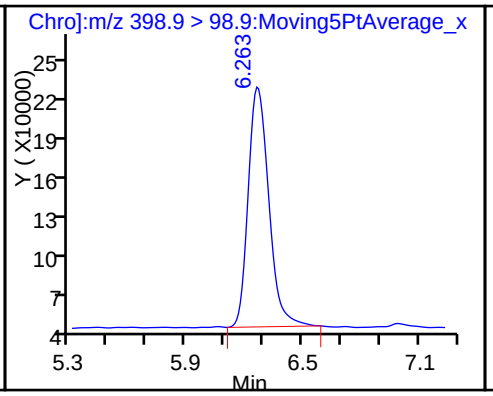
11 Perfluorohexanesulfonic acid



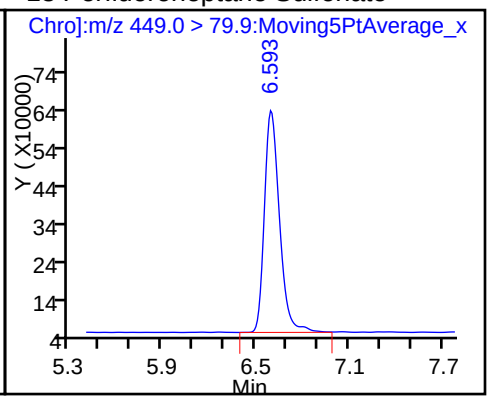
10 Perfluorohexane Sulfonate



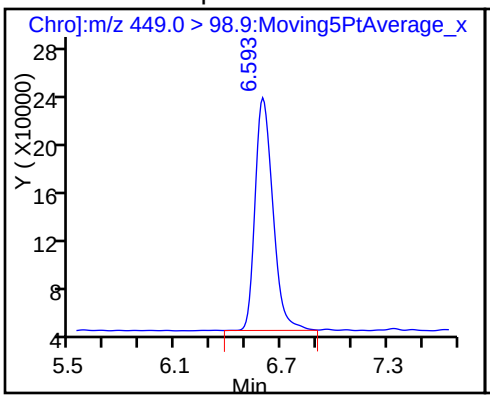
10 Perfluorohexane Sulfonate



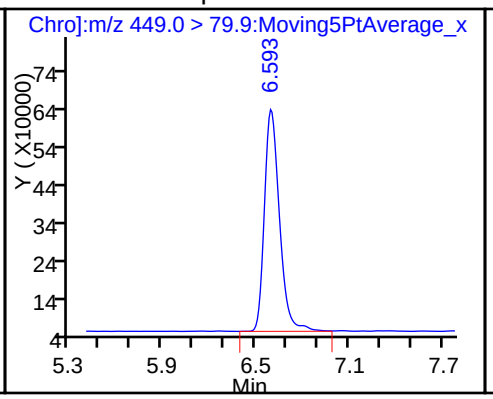
13 Perfluoroheptane Sulfonate



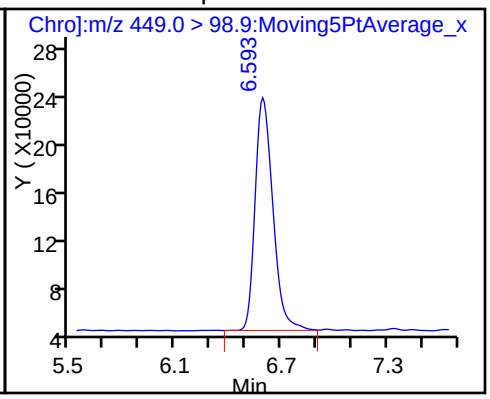
13 Perfluoroheptane Sulfonate



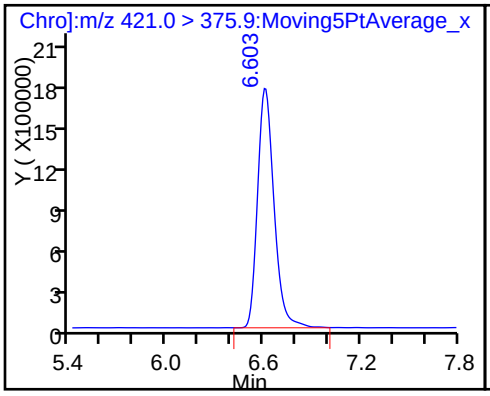
12 Perfluoroheptanesulfonic Acid



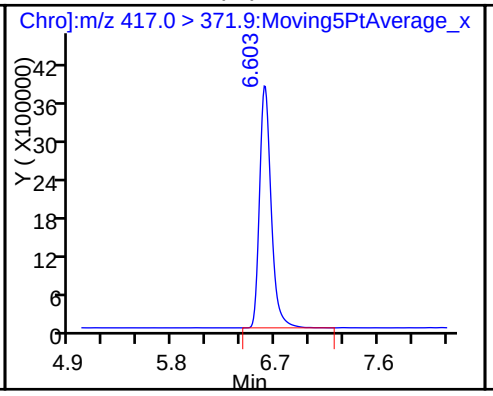
12 Perfluoroheptanesulfonic Acid



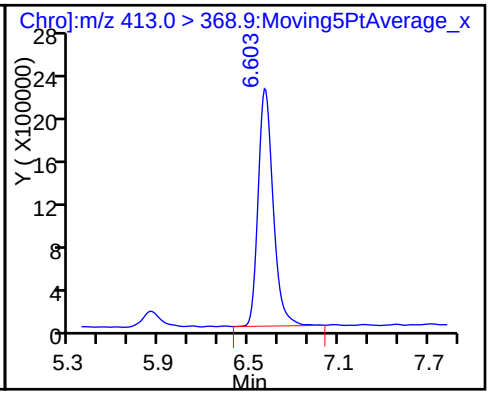
$ 14 13C8 PFOA



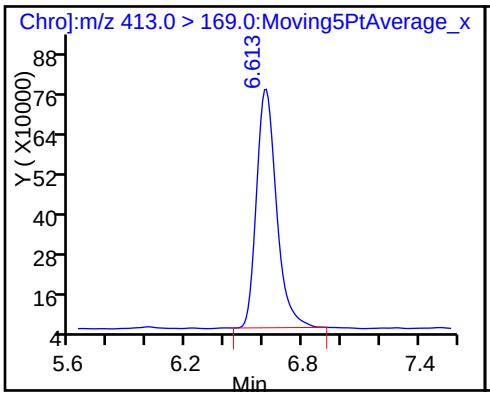
* 15 13C4 PFOA (IS)



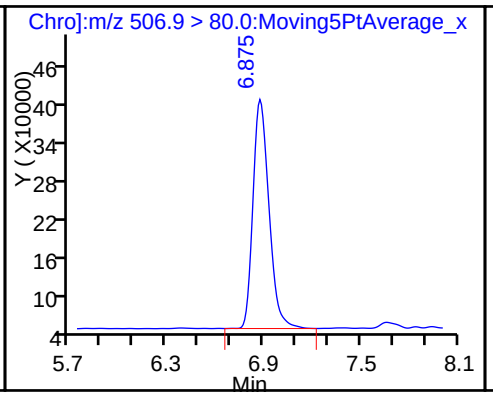
16 Perfluorooctanoic acid



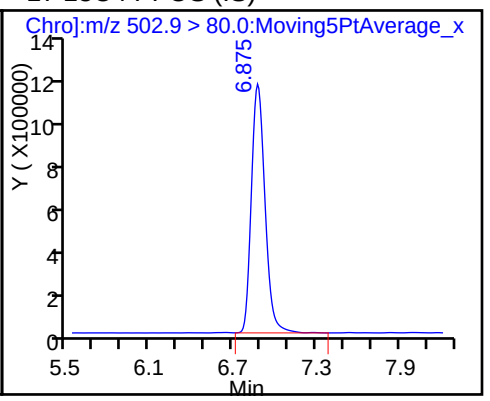
16 Perfluorooctanoic acid



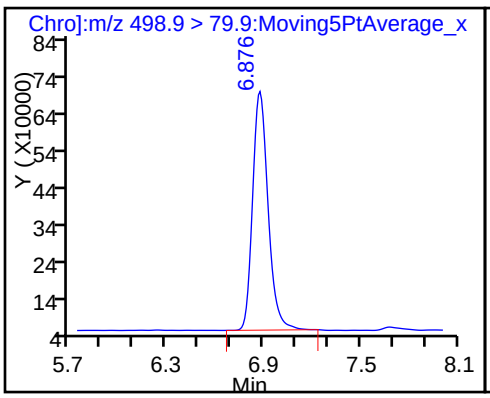
$ 18 13C8 PFOS



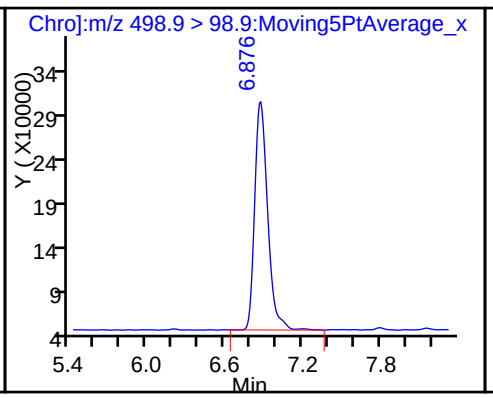
* 17 13C4 PFOS (IS)



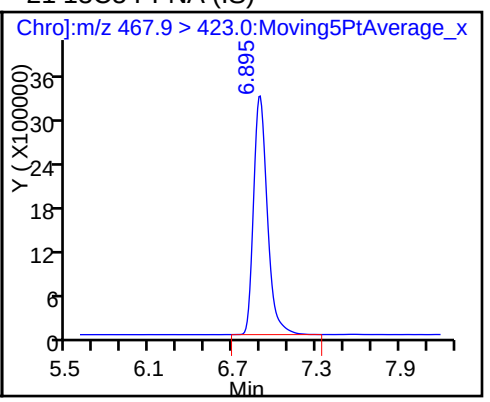
19 Perfluorooctane sulfonic acid



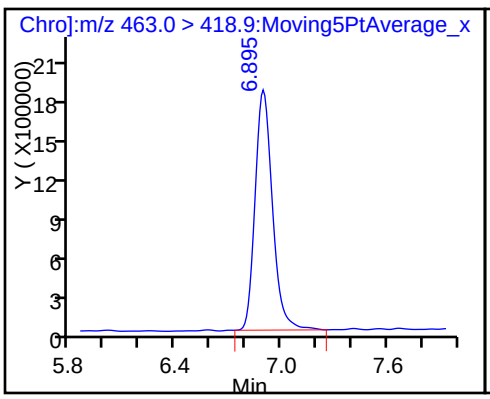
19 Perfluorooctane sulfonic acid



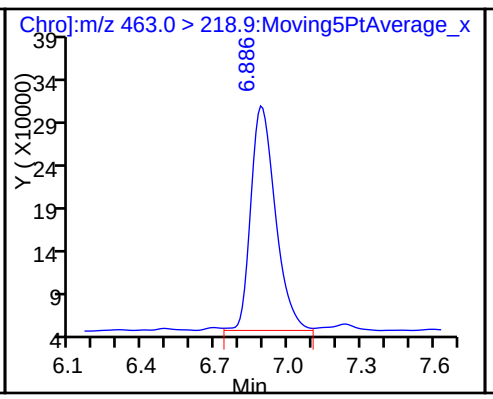
* 21 13C5 PFNA (IS)



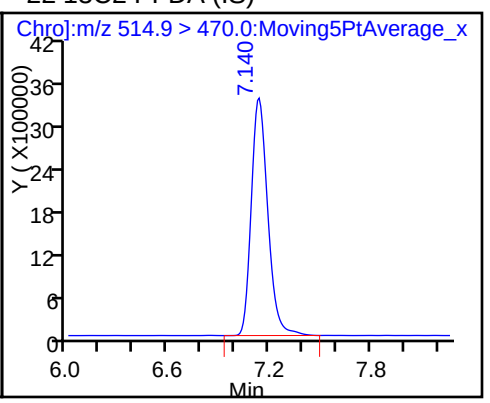
20 Perfluorononanoic acid



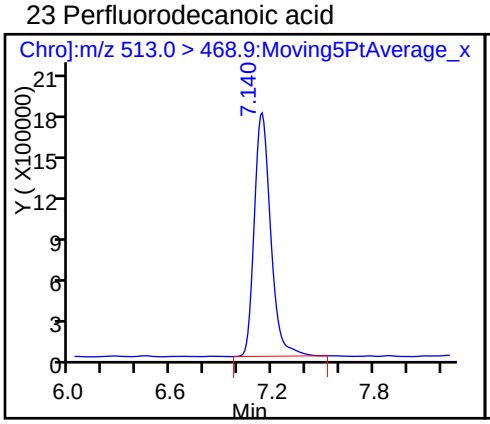
20 Perfluorononanoic acid



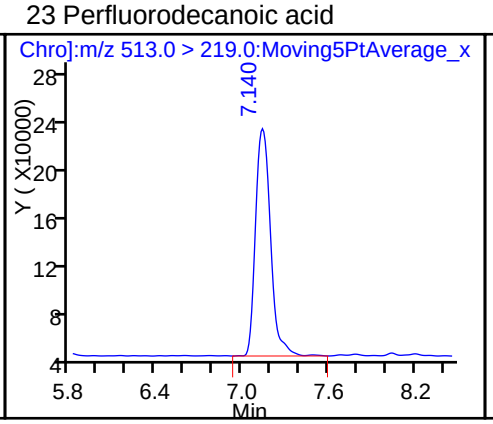
* 22 13C2 PFDA (IS)



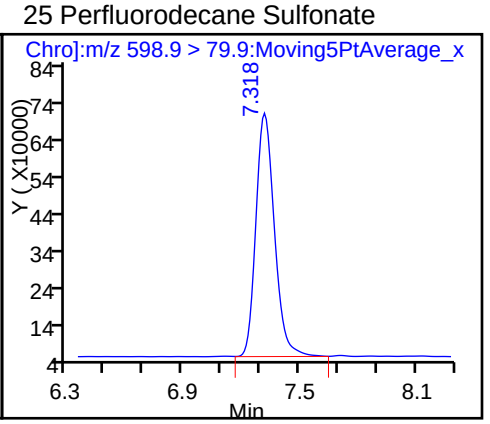
23 Perfluorodecanoic acid



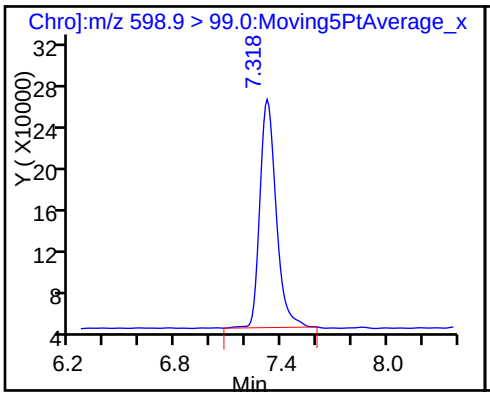
23 Perfluorodecanoic acid



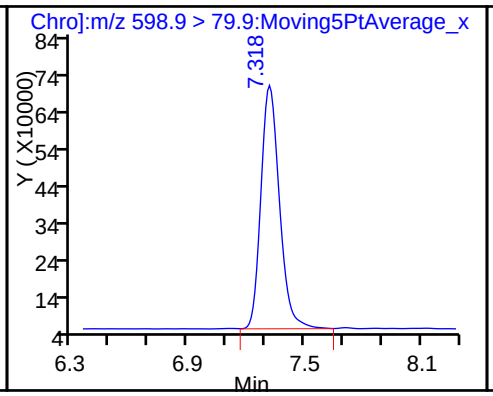
25 Perfluorodecane Sulfonate



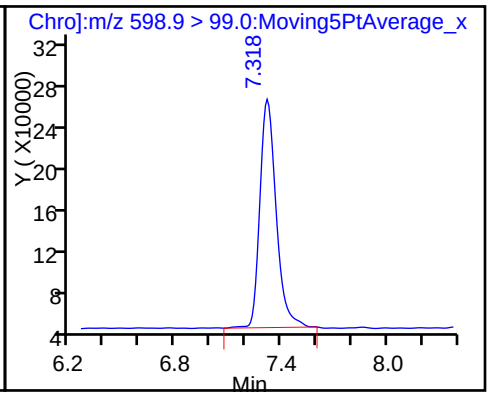
25 Perfluorodecane Sulfonate



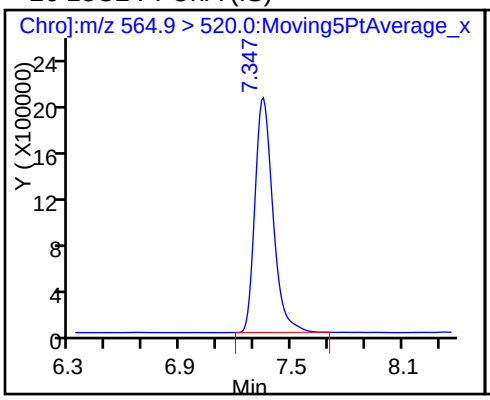
24 Perfluorodecane Sulfonic acid



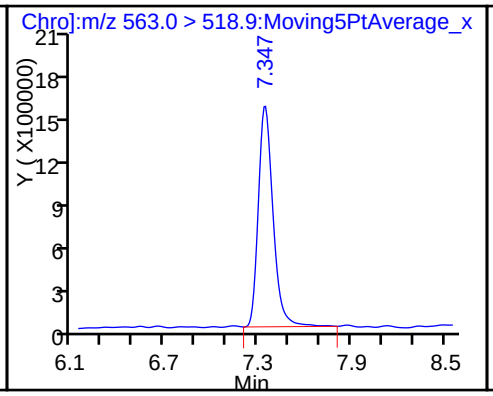
24 Perfluorodecane Sulfonic acid



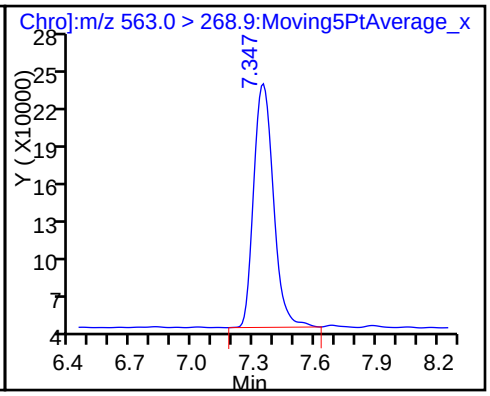
* 26 13C2 PFUnA (IS)



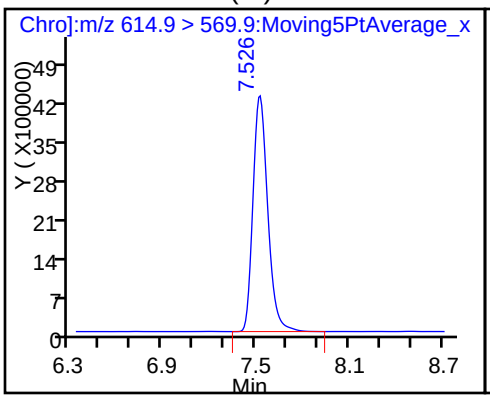
27 Perfluoroundecanoic acid



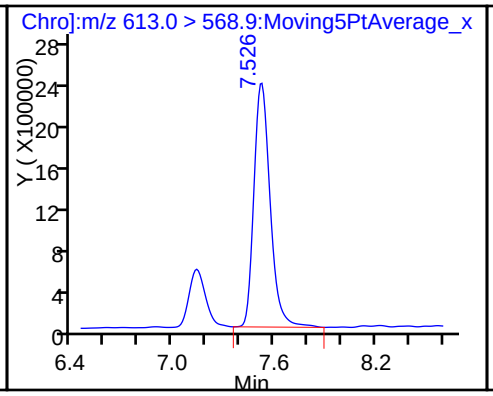
27 Perfluoroundecanoic acid



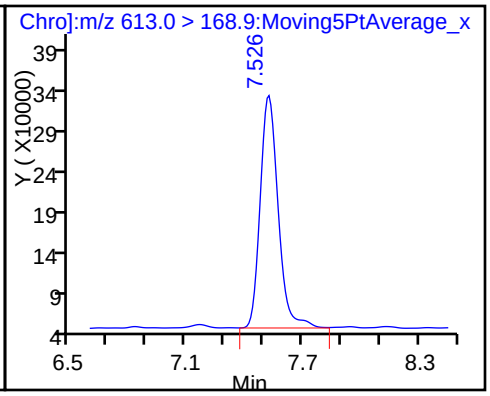
* 28 13C2 PFDoA (IS)



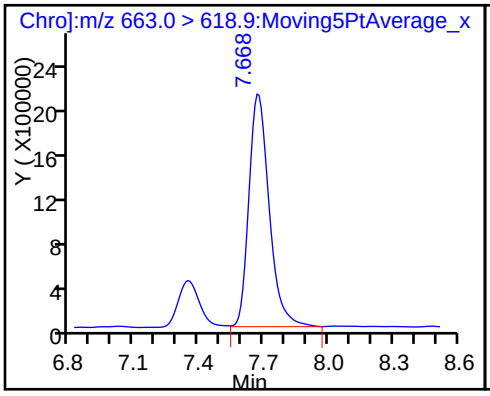
29 Perfluorododecanoic acid



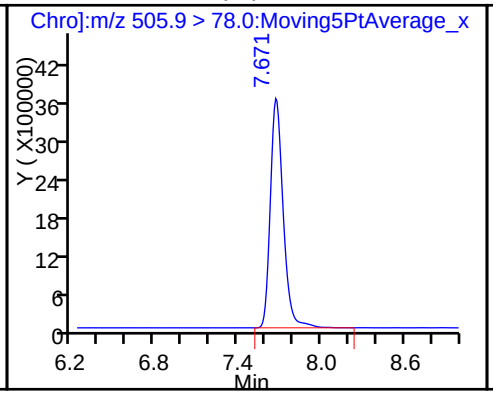
29 Perfluorododecanoic acid



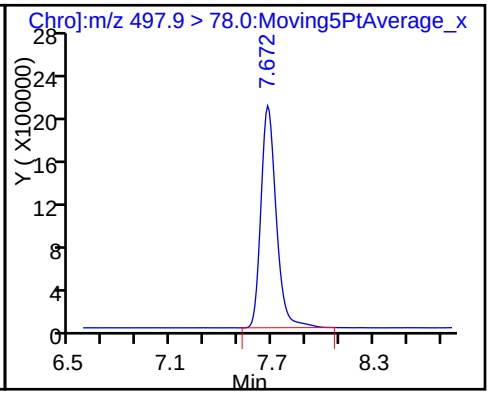
30 Perfluorotridecanoic acid



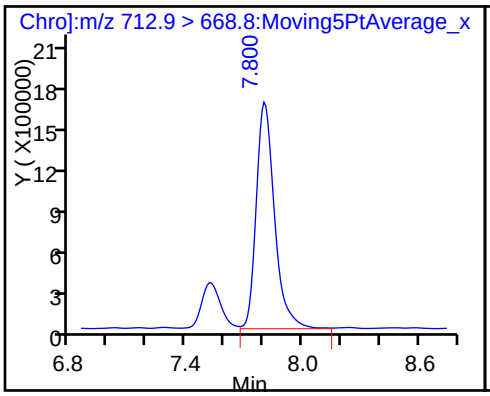
* 31 13C8 FOSA (IS)



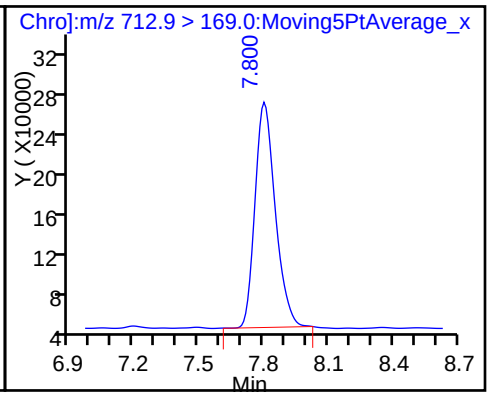
32 Perfluorooctane Sulfonamide



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Lab Sample ID: CCV 280-334502/3 Calibration Date: 07/20/2016 18:28

Instrument ID: LC_LCMS5 Calib Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calib End Date: 06/06/2016 16:28

Lab File ID: PC516G20062.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	Lin2		0.9901		9.23	10.0	-7.7	30.0
Perfluoropentanoic acid (PFPA)	Lin2		1.296		11.0	10.0	10.2	30.0
Perfluorobutane Sulfonate (PFBS)	Lin2		4.602		7.80	8.85	-11.9	30.0
Perfluorobutanesulfonic acid	Lin2		4.602		7.80	8.85	-11.9	30.0
Perfluorohexanoic acid (PFHxA)	Lin2		1.036		11.0	10.0	9.6	30.0
Perfluorohexane Sulfonate (PFHxS)	Lin2		4.101		10.0	9.45	6.0	30.0
Perfluorohexanesulfonic acid	Lin2		4.101		10.0	9.45	6.0	30.0
Perfluoroheptanoic acid (PFHpA)	Lin2		0.9172		10.6	10.0	5.5	30.0
Perfluoroheptane Sulfonate	Lin2		1.097		8.62	9.52	-9.4	30.0
Perfluoroheptanesulfonic Acid (PFHpS)	Lin2		1.097		8.62	9.52	-9.4	30.0
Perfluorooctanoic acid (PFOA)	Lin2		1.078		10.4	10.0	3.6	30.0
Perfluorooctanesulfonic acid (PFOS)	Lin2		1.089		8.87	9.55	-7.1	30.0
Perfluorononanoic acid (PFNA)	Lin2		1.090		9.72	10.0	-2.8	30.0
Perfluorodecanoic acid (PFDA)	Lin2		0.9928		9.86	10.0	-1.5	30.0
Perfluorodecane sulfonate (PFDS)	Lin2		1.107		8.63	9.65	-10.5	30.0
Perfluorodecane Sulfonic acid	Lin2		1.107		8.63	9.65	-10.5	30.0
Perfluoroundecanoic acid (PFUnA)	Lin2		1.400		9.88	10.0	-1.2	30.0
Perfluorododecanoic acid (PFDoA)	Lin2		0.9696		9.43	10.0	-5.7	30.0
Perfluorooctane Sulfonamide (FOSA)	Lin2		1.042		9.59	10.0	-4.1	30.0
Perfluorotridecanoic Acid (PFTriA)	Lin2		0.8507		9.14	10.0	-8.6	30.0
Perfluorotetradecanoic acid (PFTeA)	Lin2		0.6899		11.7	10.0	16.8	30.0
13C8 PFOA	Lin2		0.8106		10.0	10.0	0.2	30.0
13C8 PFOS	Lin2		0.5984		9.36	9.56	-2.1	30.0

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160721-49036.b\PC516G20062.d
Lims ID: CCV PFC L6
Client ID:
Sample Type: CCV
Inject. Date: 20-Jul-2016 18:28:01 ALS Bottle#: 0 Worklist Smp#: 3
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: CCV PFC L6, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160721-49036.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 21-Jul-2016 08:33:16 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK004

First Level Reviewer: meyera Date: 21-Jul-2016 08:15:34

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.124	4.124	0.0		29158172	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	4.124	4.124	0.0	1.000	28868085	9.23			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.166	5.166	0.0	0.904	23405100	11.0			
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.279	5.279	0.0	0.860	10153925	7.80			
298.9 > 98.9	5.279	5.279	0.0	0.860	3046695		3.33(1.80-3.35)		
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.279	5.279	0.0	0.860	10153925	7.80			
298.9 > 98.9	5.279	5.279	0.0	0.860	3046695		3.33(2.57-2.57)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.714	5.714	0.0		18056458	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.714	5.714	0.0	1.000	18713531	11.0			
313.0 > 118.6	5.714	5.714	0.0	1.000	533606		35.07(34.05-63.23)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.131	6.131	0.0	0.948	25887765	10.5			
363.0 > 168.9	6.131	6.131	0.0	0.948	7073958		3.66(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.139	6.139	0.0		2358399	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.130	6.130	0.0	0.998	9661722	10.0			R
398.9 > 98.9	6.140	6.130	0.010	1.000	3279220		2.95(1.30-2.41)		
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.130	6.130	0.0	0.998	9661722	10.0			
398.9 > 98.9	6.140	6.130	0.010	1.000	3279220		2.95(1.85-1.85)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.460	6.460	0.0	0.958	9484497	8.62			
449.0 > 98.9	6.460	6.460	0.0	0.958	2920449		3.25(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.460	6.460	0.0	0.958	9484497	8.62			
449.0 > 98.9	6.460	6.460	0.0	0.958	2920449		3.25(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.470	6.470	0.0	1.000	22878235	10.0			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.470	6.470	0.0		28224631	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.471	6.471	0.0	1.000	30437659	10.4			
413.0 > 169.0	6.471	6.471	0.0	1.000	9906327		3.07(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.742	6.742	0.0	1.000	5194240	9.36			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.743	6.743	0.0		8680715	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.743	6.743	0.0	1.000	9443171	8.87			R
498.9 > 98.9	6.743	6.743	0.0	1.000	3475023		2.72(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.763	6.763	0.0		21659664	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.763	6.763	0.0	1.000	23607034	9.72			
463.0 > 218.9	6.763	6.763	0.0	1.000	3647282		6.47(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.007	7.007	0.0		23525206	10.0			
23 Perfluorodecanoic acid									R
513.0 > 468.9	7.007	7.007	0.0	1.000	23356631	9.85			R
513.0 > 219.0	7.007	7.007	0.0	1.000	2336725		10.00(10.49-19.48)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.195	7.195	0.0	1.067	9701999	8.63			
598.9 > 99.0	7.195	7.195	0.0	1.067	3017699		3.22(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.195	7.195	0.0	1.067	9701999	8.63			
598.9 > 99.0	7.195	7.195	0.0	1.067	3017699		3.22(2.84-2.84)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.215	7.215	0.0		14337828	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.215	7.215	0.0	1.000	20070035	9.88			R
563.0 > 268.9	7.215	7.215	0.0	1.000	2480855		8.09(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.393	7.393	0.0		30414808	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.394	7.394	0.0	1.000	29489142	9.43			
613.0 > 168.9	7.394	7.394	0.0	1.000	3691405		7.99(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.519	7.519	0.0		24422310	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.520	7.520	0.0	1.000	25435924	9.59			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.554	7.554	0.0	1.022	25873440	9.14			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.686	7.686	0.0	1.040	20982438	11.7			
712.9 > 169.0	7.686	7.686	0.0	1.040	3406181		6.16(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Reagents:

PFC-IS_00021	Amount Added: 20.00	Units: uL
PFC_Surr_00021	Amount Added: 20.00	Units: uL
PFC-LCS_00078	Amount Added: 20.00	Units: uL

Report Date: 21-Jul-2016 08:33:17 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160721-49036.b\PC516G20062.d

Injection Date: 20-Jul-2016 18:28:01 Instrument ID: LC_LCMS5

Lims ID: CCV PFC L6

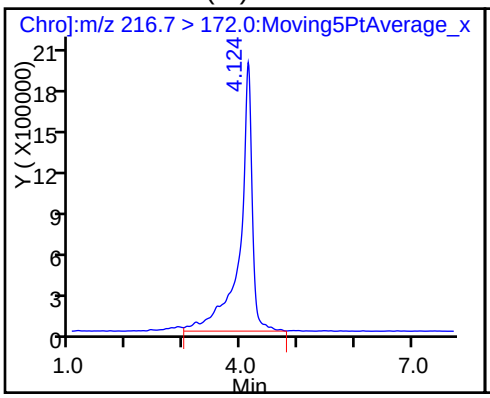
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 3

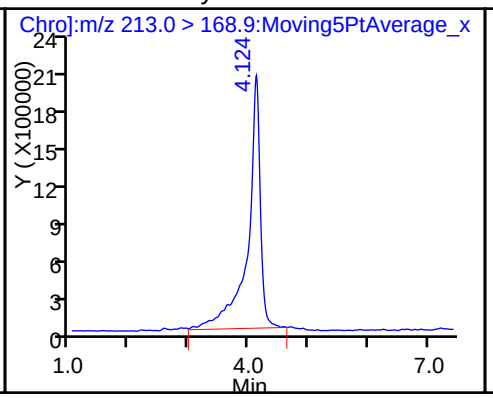
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

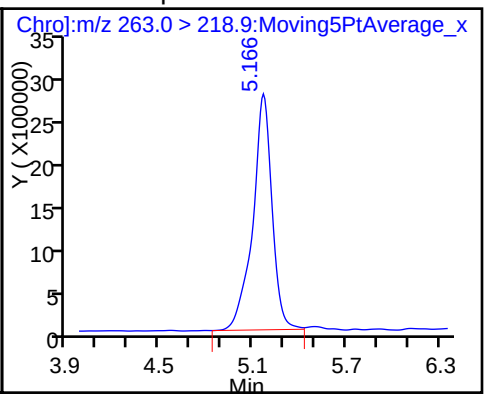
* 1 13C4 PFBA (IS)



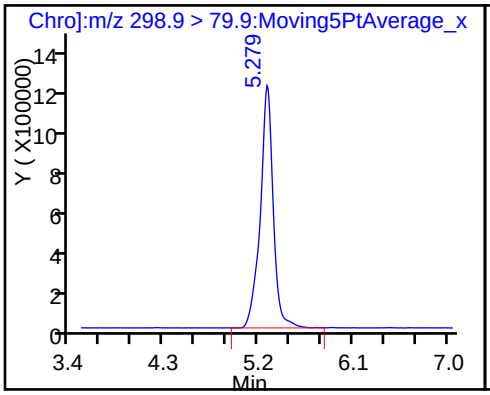
2 Perfluorobutyric acid



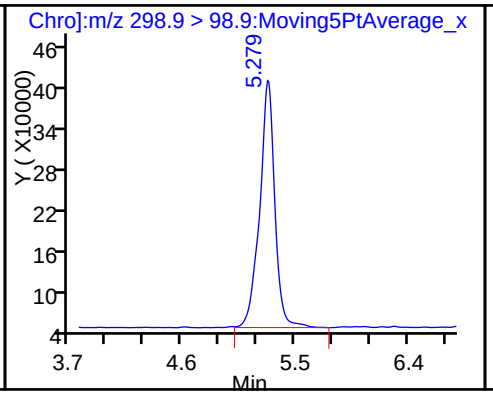
3 Perfluoropentanoic acid



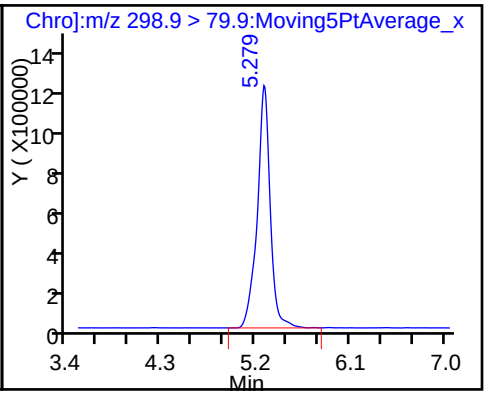
4 Perfluorobutane Sulfonate



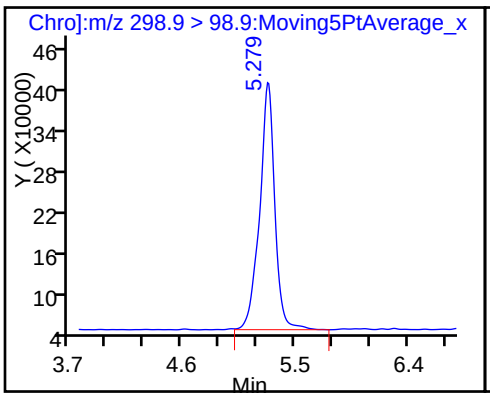
4 Perfluorobutane Sulfonate



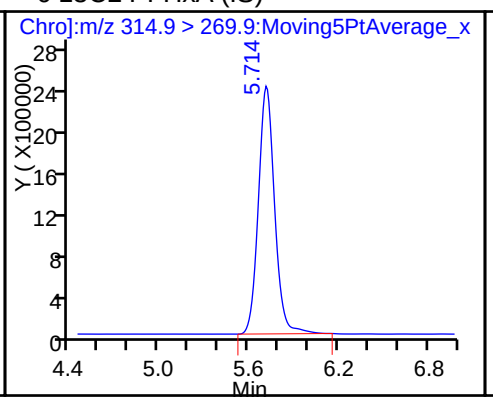
5 Perfluorobutanesulfonic acid



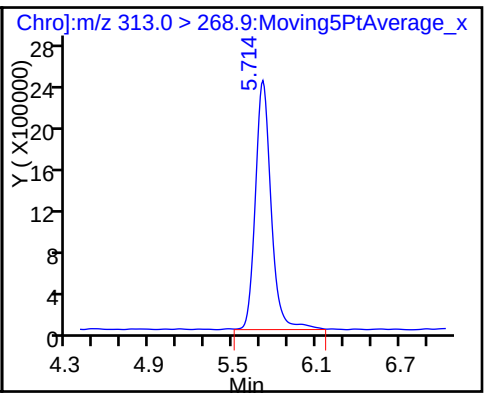
5 Perfluorobutanesulfonic acid



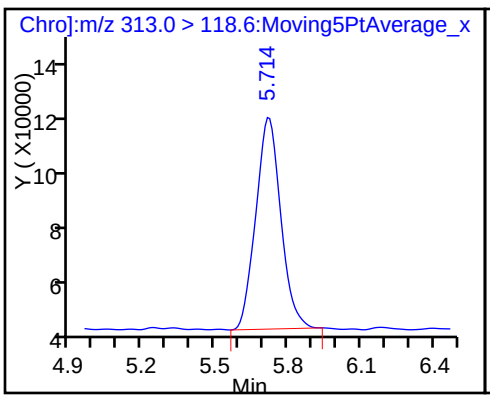
* 6 13C2 PFHxA (IS)



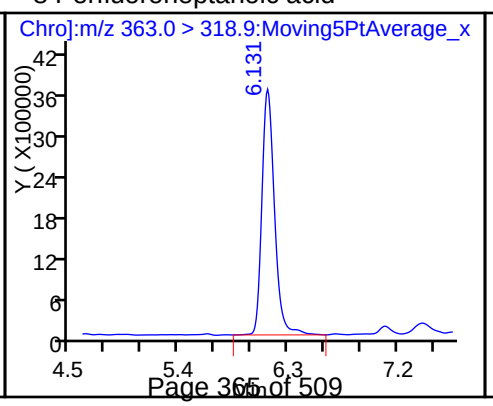
7 Perfluorohexanoic acid



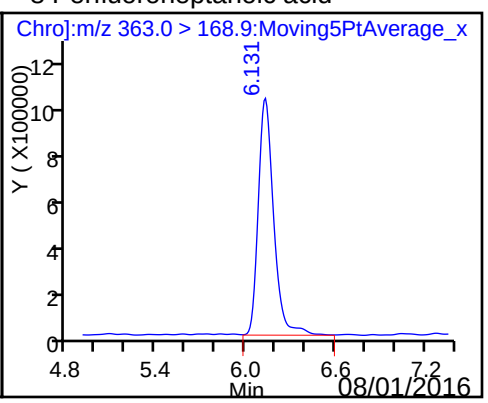
7 Perfluorohexanoic acid



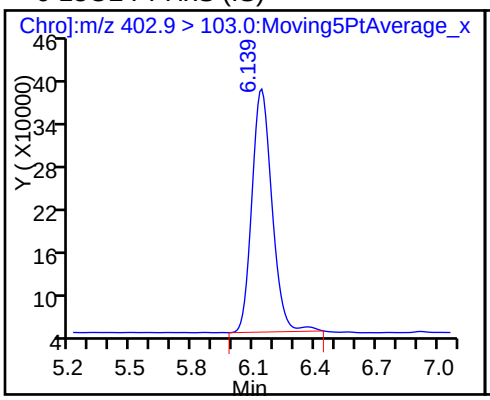
8 Perfluoroheptanoic acid



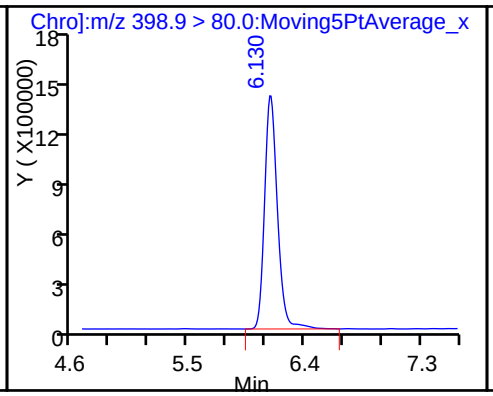
8 Perfluoroheptanoic acid



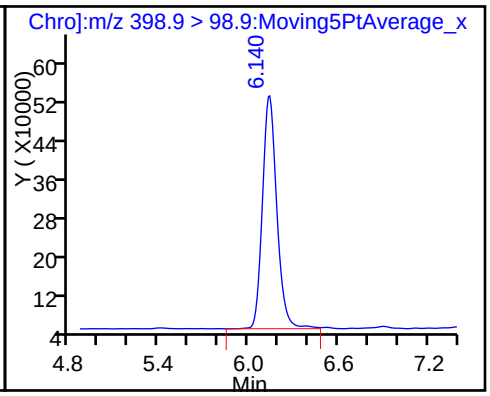
* 9 18O2 PFHxS (IS)



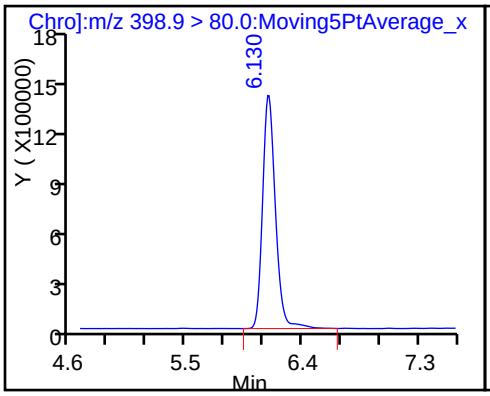
10 Perfluorohexane Sulfonate



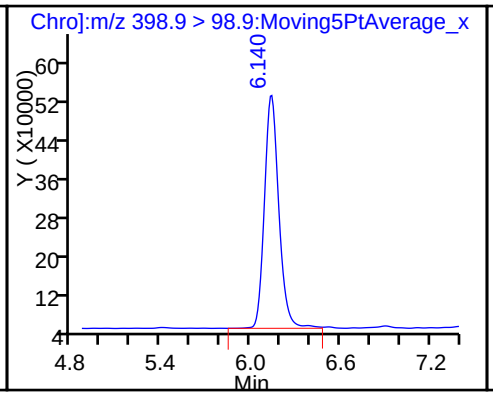
10 Perfluorohexane Sulfonate



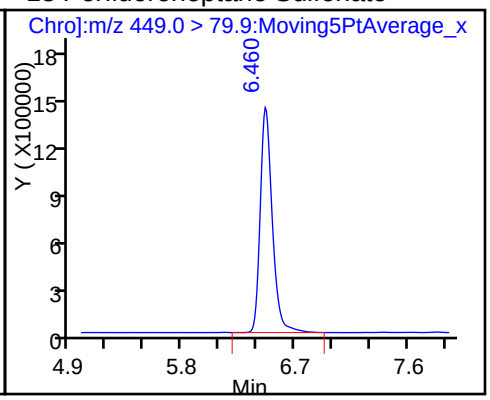
11 Perfluorohexanesulfonic acid



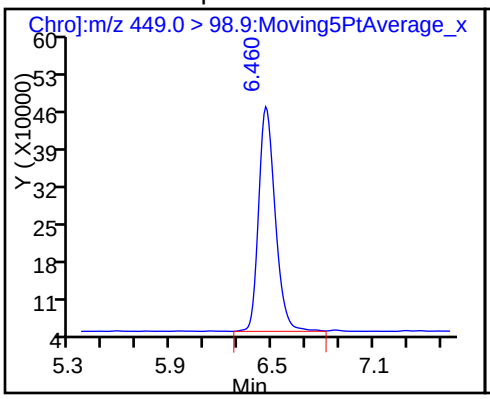
11 Perfluorohexanesulfonic acid



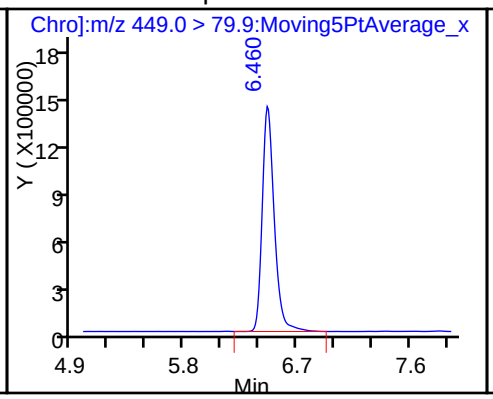
13 Perfluoroheptane Sulfonate



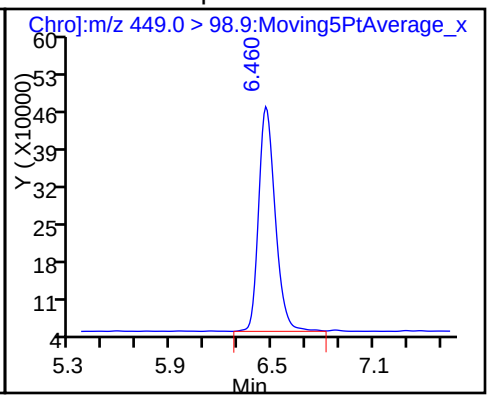
13 Perfluoroheptane Sulfonate



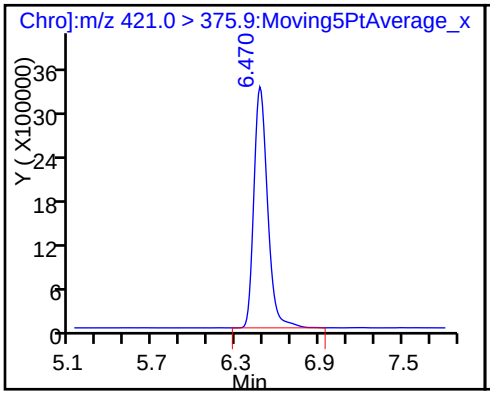
12 Perfluoroheptanesulfonic Acid



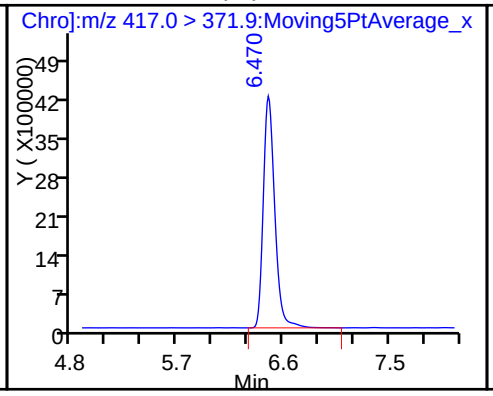
12 Perfluoroheptanesulfonic Acid



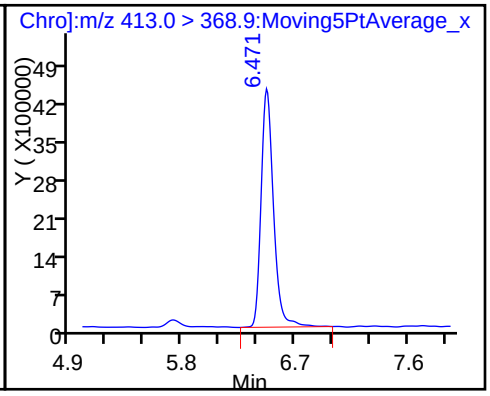
$ 14 13C8 PFOA



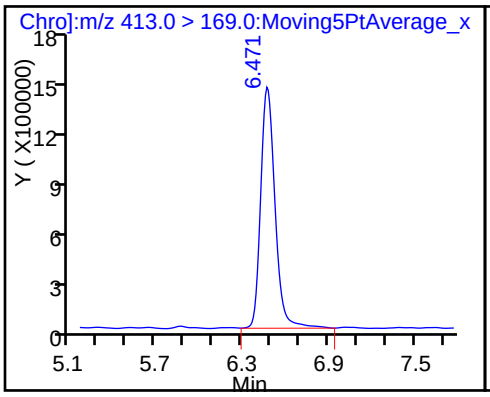
* 15 13C4 PFOA (IS)



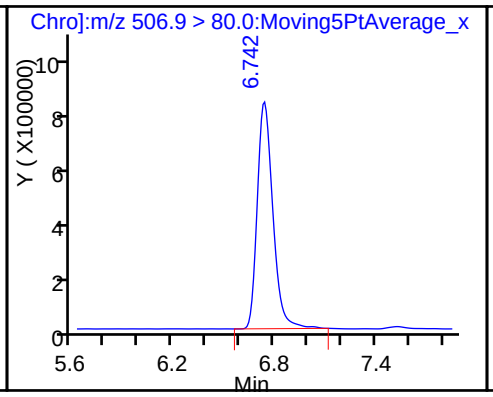
16 Perfluorooctanoic acid



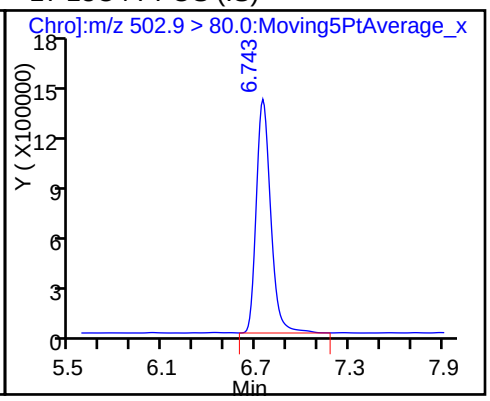
16 Perfluorooctanoic acid



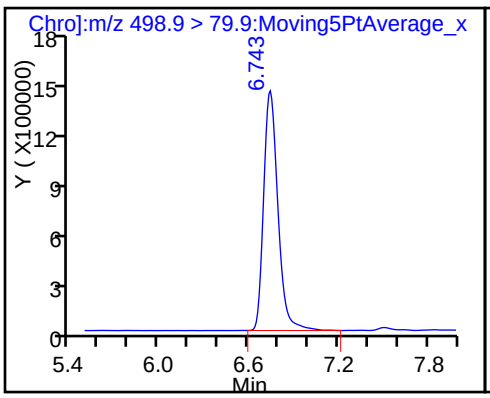
$ 18 13C8 PFOS



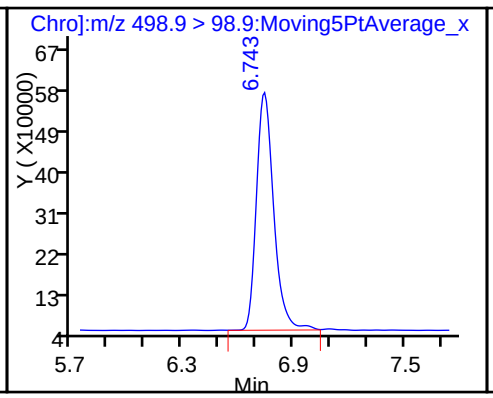
* 17 13C4 PFOS (IS)



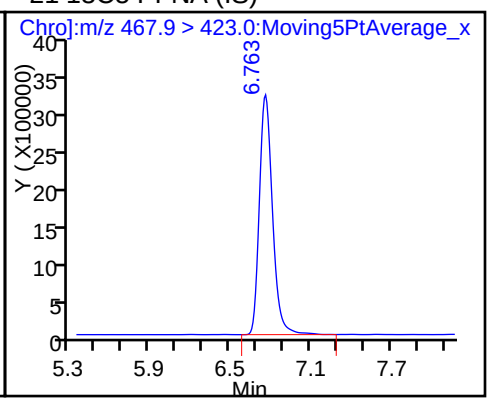
19 Perfluorooctane sulfonic acid



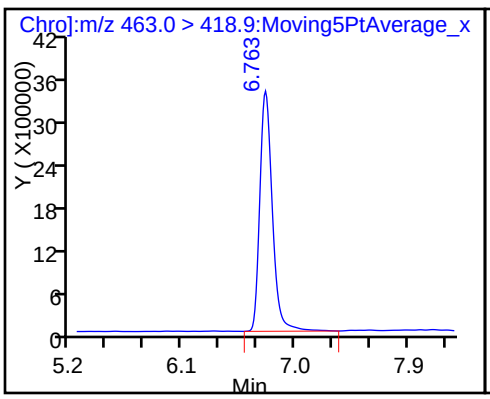
19 Perfluorooctane sulfonic acid



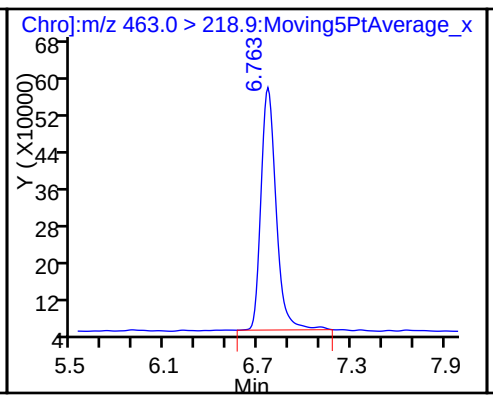
* 21 13C5 PFNA (IS)



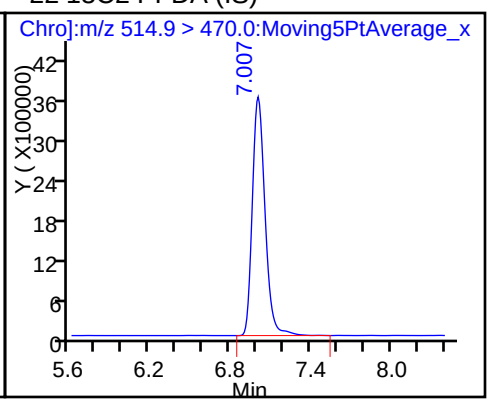
20 Perfluorononanoic acid



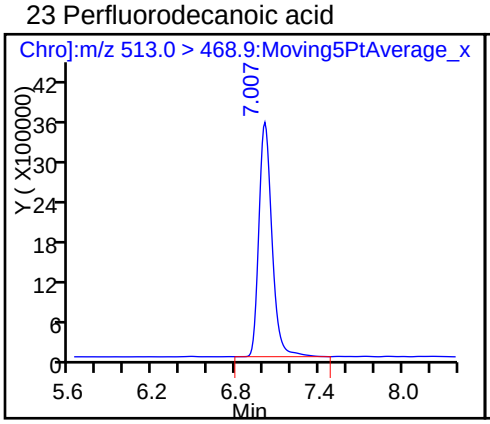
20 Perfluorononanoic acid



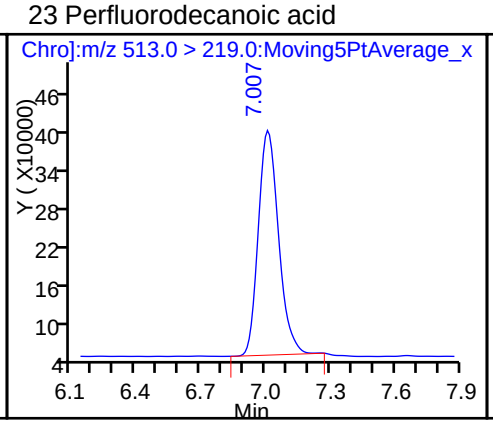
* 22 13C2 PFDA (IS)



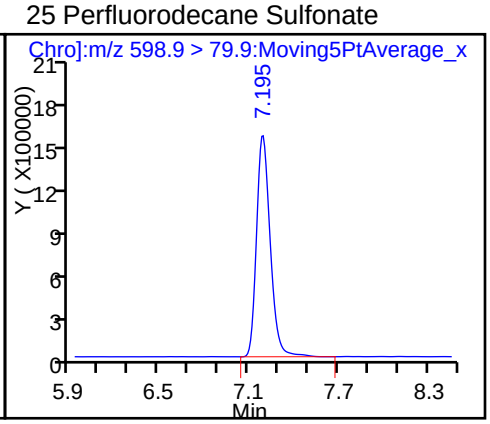
23 Perfluorodecanoic acid



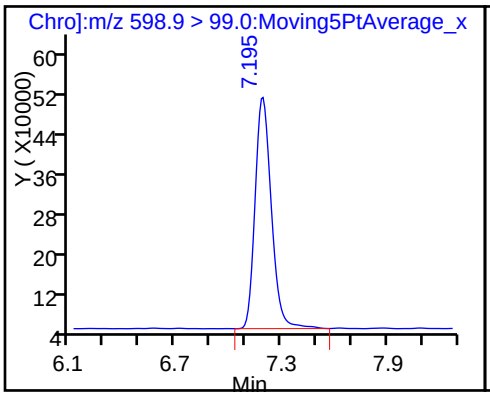
23 Perfluorodecanoic acid



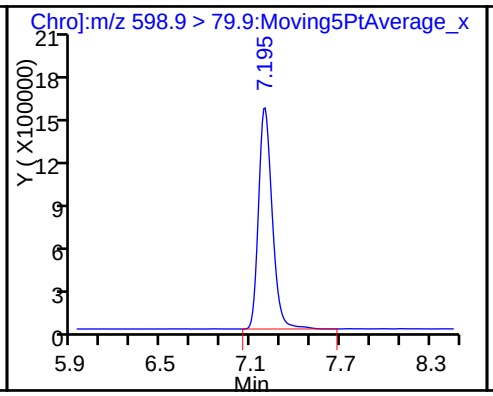
25 Perfluorodecane Sulfonate



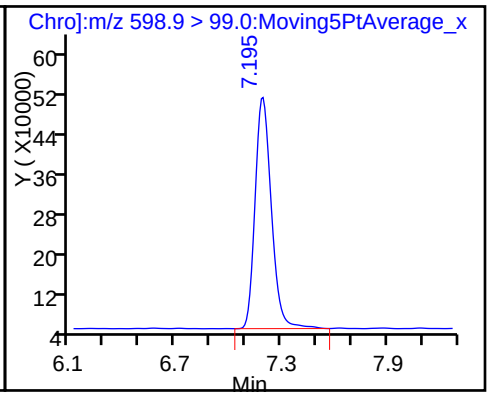
25 Perfluorodecane Sulfonate



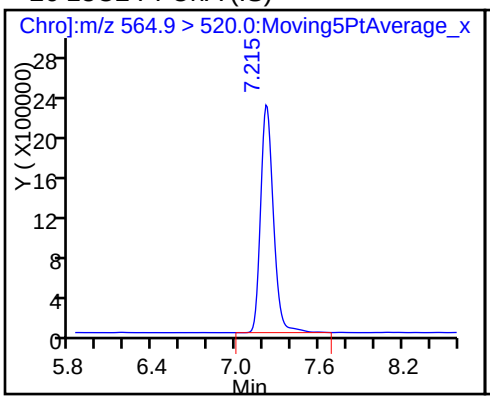
24 Perfluorodecane Sulfonic acid



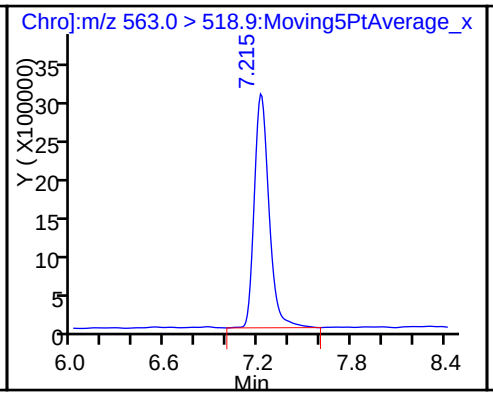
24 Perfluorodecane Sulfonic acid



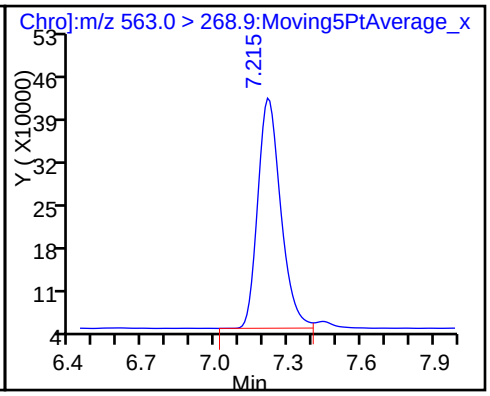
* 26 13C2 PFUnA (IS)



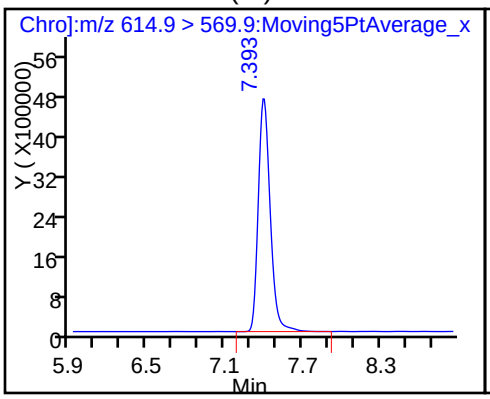
27 Perfluoroundecanoic acid



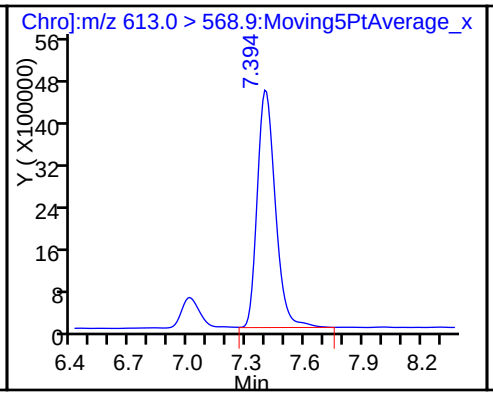
27 Perfluoroundecanoic acid



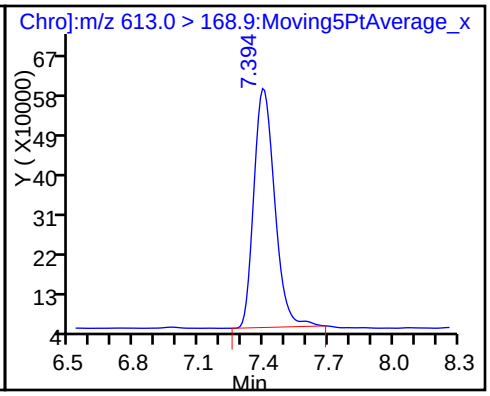
* 28 13C2 PFDoA (IS)



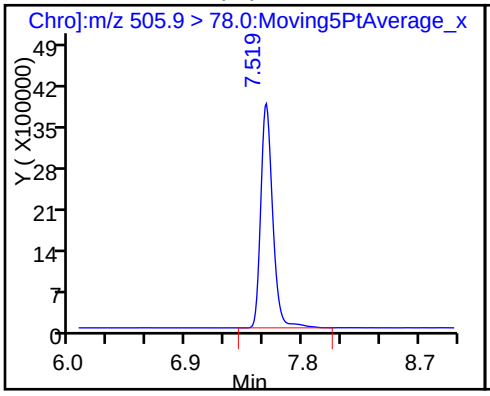
29 Perfluorododecanoic acid



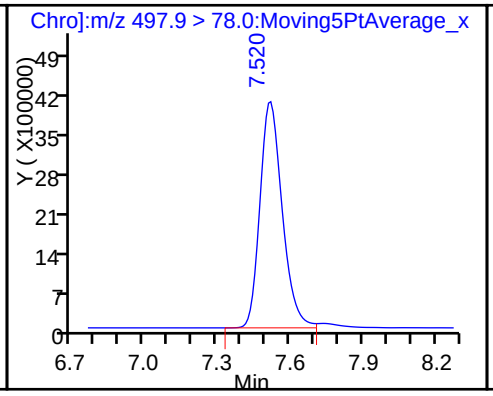
29 Perfluorododecanoic acid



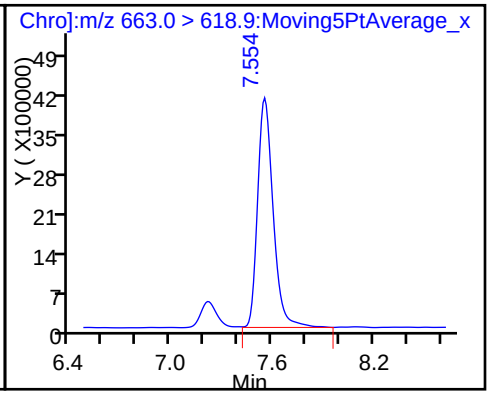
* 31 13C8 FOSA (IS)



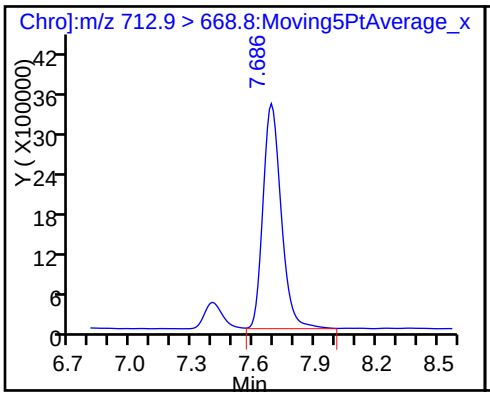
32 Perfluorooctane Sulfonamide



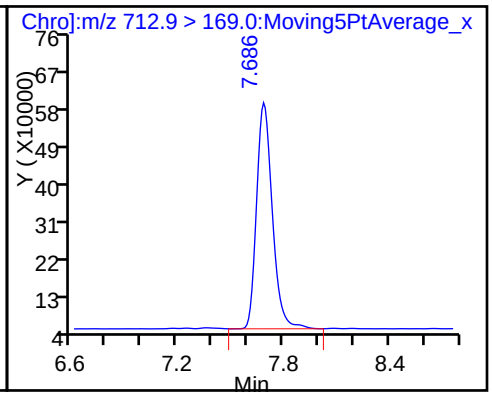
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Lab Sample ID: CCV 280-334502/14 Calibration Date: 07/20/2016 20:43

Instrument ID: LC_LCMS5 Calib Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calib End Date: 06/06/2016 16:28

Lab File ID: PC516G20073.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	Lin2		1.002		4.67	5.00	-6.6	30.0
Perfluoropentanoic acid (PFPA)	Lin2		1.309		5.55	5.00	11.0	30.0
Perfluorobutane Sulfonate (PFBS)	Lin2		4.650		3.94	4.43	-10.9	30.0
Perfluorobutanesulfonic acid	Lin2		4.650		3.94	4.43	-10.9	30.0
Perfluorohexanoic acid (PFHxA)	Lin2		1.040		5.49	5.00	9.7	30.0
Perfluoroheptanoic acid (PFHpA)	Lin2		0.9158		5.25	5.00	5.0	30.0
Perfluorohexane Sulfonate (PFHxS)	Lin2		4.424		5.36	4.73	13.5	30.0
Perfluorohexanesulfonic acid	Lin2		4.424		5.36	4.73	13.5	30.0
Perfluoroheptane Sulfonate	Lin2		1.100		4.33	4.76	-9.1	30.0
Perfluoroheptanesulfonic Acid (PFHpS)	Lin2		1.100		4.33	4.76	-9.1	30.0
Perfluorooctanoic acid (PFOA)	Lin2		1.156		5.52	5.00	10.4	30.0
Perfluorooctanesulfonic acid (PFOS)	Lin2		1.155		4.67	4.78	-2.2	30.0
Perfluorononanoic acid (PFNA)	Lin2		1.136		5.04	5.00	0.8	30.0
Perfluorodecanoic acid (PFDA)	Lin2		0.997		4.93	5.00	-1.4	30.0
Perfluorodecane sulfonate (PFDS)	Lin2		1.158		4.50	4.83	-6.8	30.0
Perfluorodecane Sulfonic acid	Lin2		1.158		4.50	4.83	-6.8	30.0
Perfluoroundecanoic acid (PFUnA)	Lin2		1.535		5.39	5.00	7.8	30.0
Perfluorododecanoic acid (PFDoA)	Lin2		1.066		5.16	5.00	3.2	30.0
Perfluorooctane Sulfonamide (FOSA)	Lin2		1.105		5.09	5.00	1.7	30.0
Perfluorotridecanoic Acid (PFTriA)	Lin2		0.9635		5.14	5.00	2.8	30.0
Perfluorotetradecanoic acid (PFTeA)	Lin2		0.7592		6.42	5.00	28.4	30.0
13C8 PFOA	Lin2		0.9277		5.72	5.00	14.3	30.0
13C8 PFOS	Lin2		0.7202		5.62	4.78	17.5	30.0

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160721-49036.b\PC516G20073.d
Lims ID: CCV PFC L5
Client ID:
Sample Type: CCV
Inject. Date: 20-Jul-2016 20:43:24 ALS Bottle#: 0 Worklist Smp#: 14
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: CCV PFC L5, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160721-49036.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 21-Jul-2016 08:34:12 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK004

First Level Reviewer: meyera Date: 21-Jul-2016 08:19:07

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	3.954	3.954	0.0		26990911	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	3.954	3.954	0.0	1.000	13520164	4.67			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.062	5.062	0.0	0.896	11745575	5.55			
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.184	5.184	0.0	0.851	4914696	3.94			
298.9 > 98.9	5.184	5.184	0.0	0.851	1487760		3.30(1.80-3.35)		
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.184	5.184	0.0	0.851	4914696	3.94			
298.9 > 98.9	5.184	5.184	0.0	0.851	1487760		3.30(2.57-2.57)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.648	5.648	0.0		17951349	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.648	5.648	0.0	1.000	9331135	5.49			
313.0 > 118.6	5.648	5.648	0.0	1.000	285539		32.68(34.05-63.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.092	6.092	0.0		2259715	9.46			
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.092	6.092	0.0	1.000	4993572	5.36			
398.9 > 98.9	6.092	6.092	0.0	1.000	1664940		3.00(1.85-1.85)		
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.092	6.092	0.0	1.000	4993572	5.36			R
398.9 > 98.9	6.092	6.092	0.0	1.000	1664940		3.00(1.30-2.41)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.083	6.083	0.0	0.946	13134746	5.25			
363.0 > 168.9	6.083	6.083	0.0	0.946	3436508		3.82(3.35-6.23)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.432	6.432	0.0	0.958	4641521	4.32			
449.0 > 98.9	6.422	6.432	-0.010	0.956	1473454		3.15(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.432	6.432	0.0	0.958	4641521	4.32			
449.0 > 98.9	6.422	6.432	-0.010	0.956	1473454		3.15(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.432	6.432	0.0	1.000	13304927	5.72			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.442	6.442	0.0	1.002	16581643	5.52			
413.0 > 169.0	6.442	6.442	0.0	1.002	5308647		3.12(2.86-5.31)		
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.432	6.432	0.0		28684107	10.0			
$ 18 13C8 PFOS									
506.9 > 80.0	6.714	6.714	0.0	1.000	3052809	5.62			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.714	6.714	0.0		8477872	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.715	6.715	0.0	1.000	4891790	4.67			R
498.9 > 98.9	6.715	6.715	0.0	1.000	1864415		2.62(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.734	6.734	0.0		22591557	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.734	6.734	0.0	1.000	12829658	5.04			
463.0 > 218.9	6.734	6.734	0.0	1.000	2009550		6.38(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	6.988	6.988	0.0		24044067	10.0			
23 Perfluorodecanoic acid									R
513.0 > 468.9	6.979	6.979	0.0	0.999	11983819	4.93			R
513.0 > 219.0	6.979	6.979	0.0	0.999	1157569		10.35(10.49-19.48)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.167	7.167	0.0	1.067	4956909	4.50			
598.9 > 99.0	7.167	7.167	0.0	1.067	1561633		3.17(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.167	7.167	0.0	1.067	4956909	4.50			
598.9 > 99.0	7.167	7.167	0.0	1.067	1561633		3.17(2.84-2.84)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.196	7.196	0.0		14501538	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.196	7.196	0.0	1.000	11130685	5.39			R
563.0 > 268.9	7.196	7.196	0.0	1.000	1338917		8.31(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.375	7.375	0.0		29650845	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.375	7.375	0.0	1.000	15800654	5.16			
613.0 > 168.9	7.375	7.375	0.0	1.000	1836663		8.60(5.96-11.06)		
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.520	7.520	0.0	0.999	13562894	5.09			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.529	7.529	0.0		24541165	10.0			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.535	7.535	0.0	1.022	14284591	5.14			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.668	7.668	0.0	1.040	11255520	6.42			
712.9 > 169.0	7.668	7.668	0.0	1.040	1748081		6.44(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Reagents:

PFC-LCS_00078	Amount Added: 10.00	Units: uL
PFC_Surr_00021	Amount Added: 10.00	Units: uL
PFC-IS_00021	Amount Added: 20.00	Units: uL

Report Date: 21-Jul-2016 08:34:12 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160721-49036.b\PC516G20073.d

Injection Date: 20-Jul-2016 20:43:24 Instrument ID: LC_LCMS5

Lims ID: CCV PFC L5

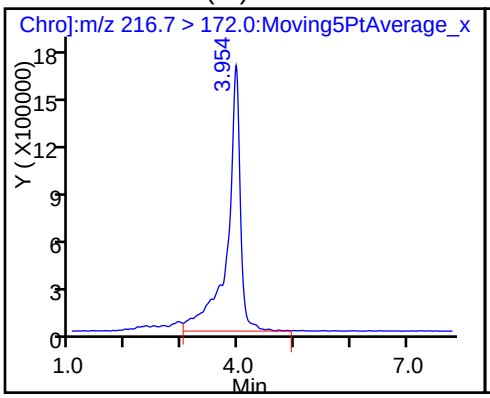
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 14

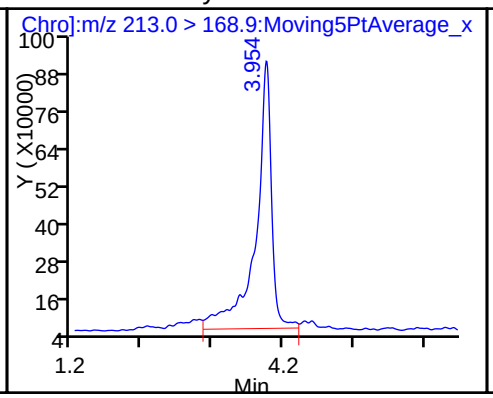
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

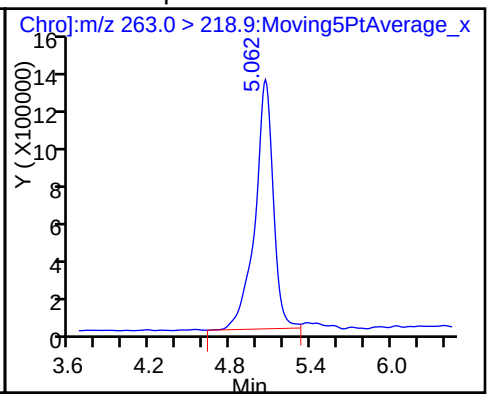
* 1 13C4 PFBA (IS)



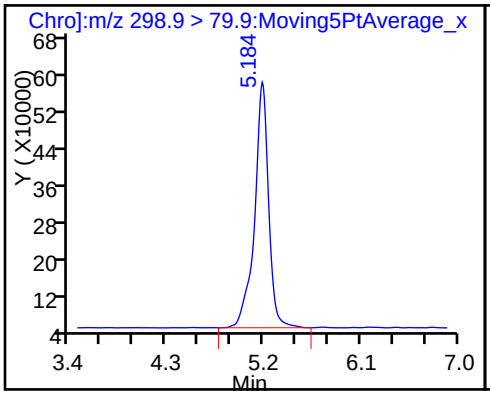
2 Perfluorobutyric acid



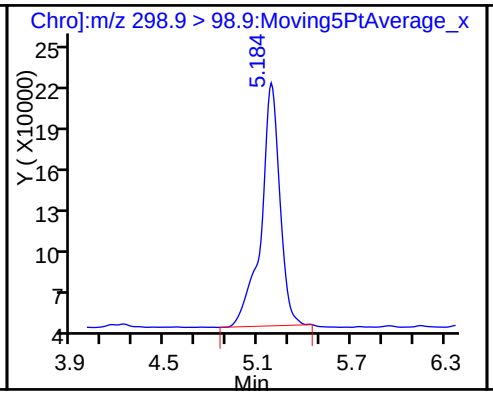
3 Perfluoropentanoic acid



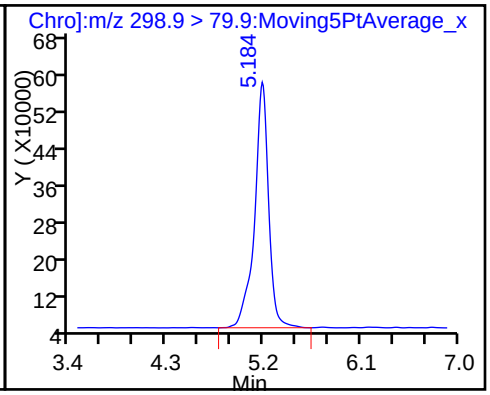
4 Perfluorobutane Sulfonate



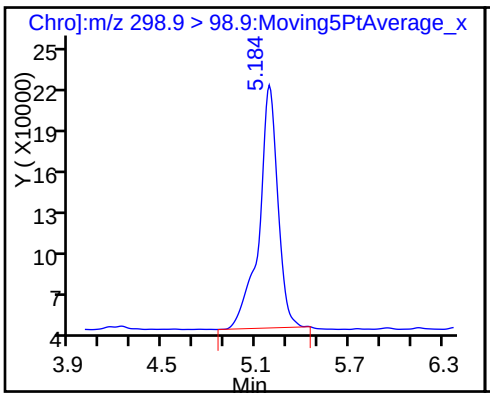
4 Perfluorobutane Sulfonate



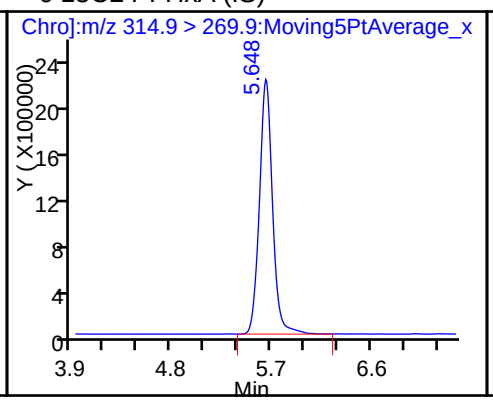
5 Perfluorobutanesulfonic acid



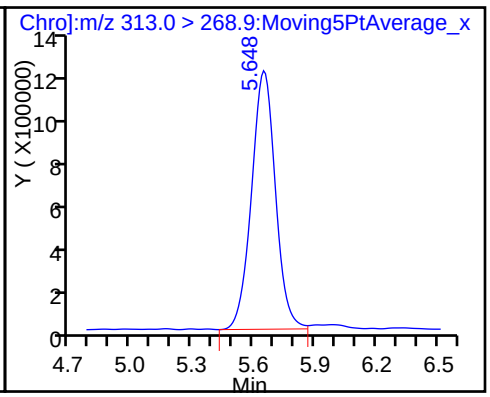
5 Perfluorobutanesulfonic acid



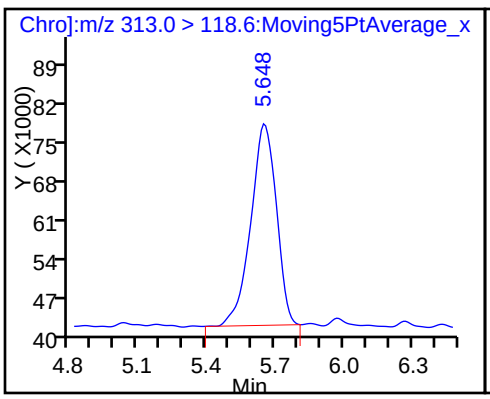
* 6 13C2 PFHxA (IS)



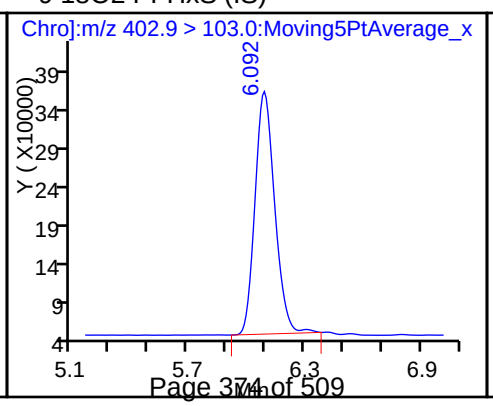
7 Perfluorohexanoic acid



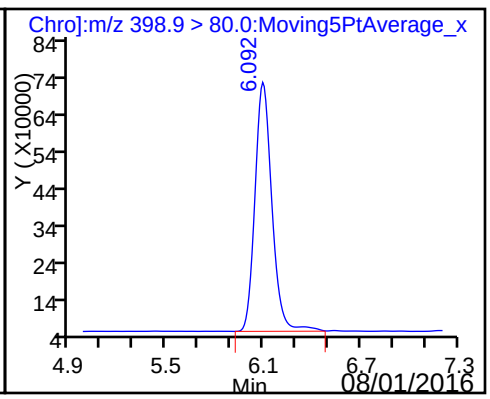
7 Perfluorohexanoic acid



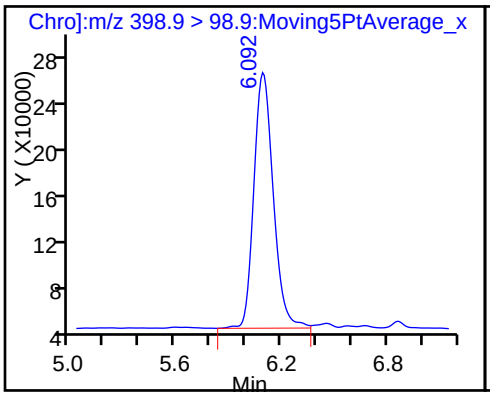
* 9 18O2 PFHxS (IS)



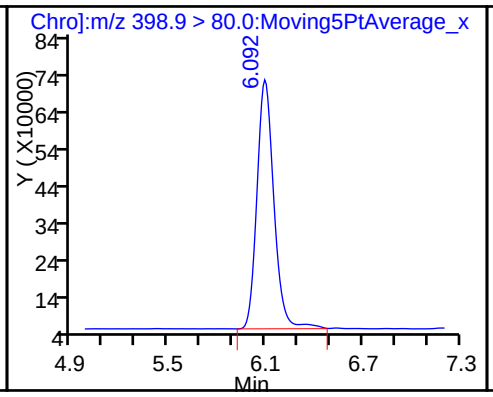
11 Perfluorohexanesulfonic acid



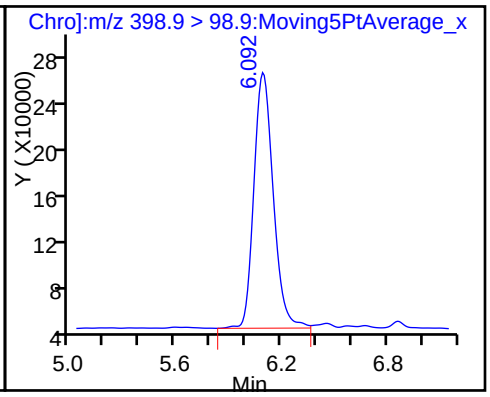
11 Perfluorohexanesulfonic acid



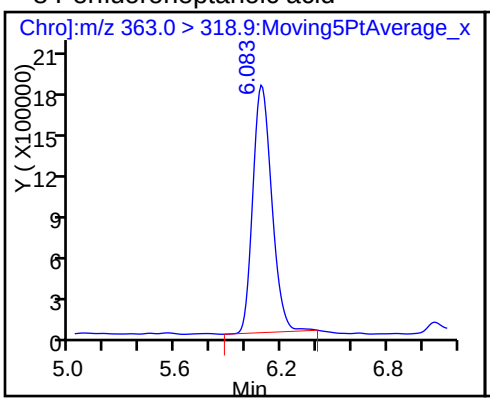
10 Perfluorohexane Sulfonate



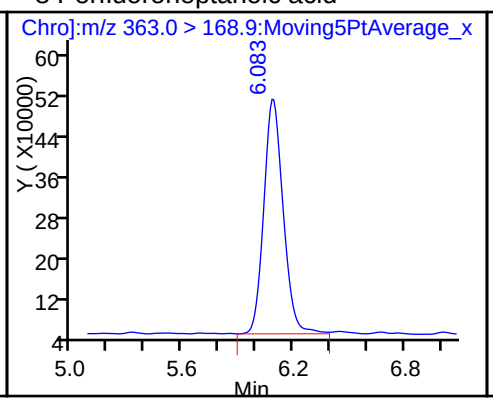
10 Perfluorohexane Sulfonate



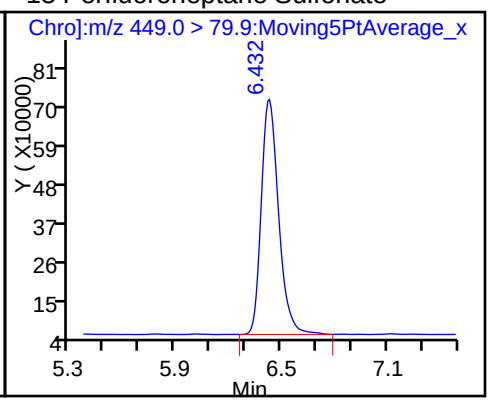
8 Perfluoroheptanoic acid



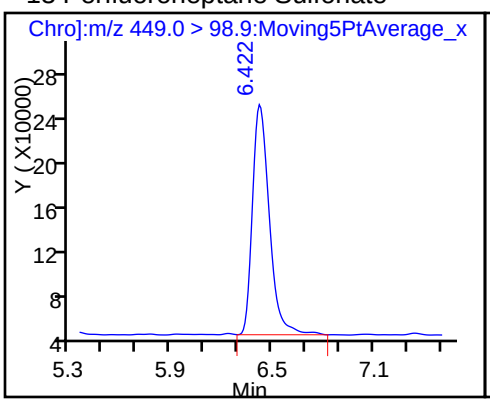
8 Perfluoroheptanoic acid



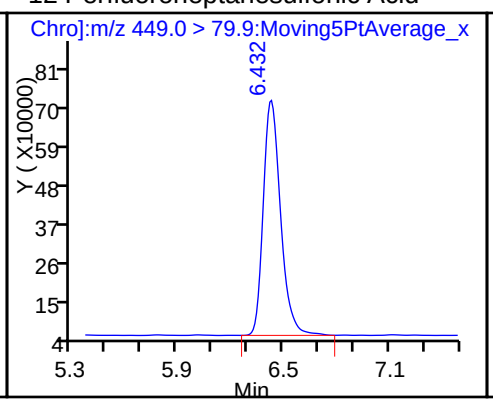
13 Perfluoroheptane Sulfonate



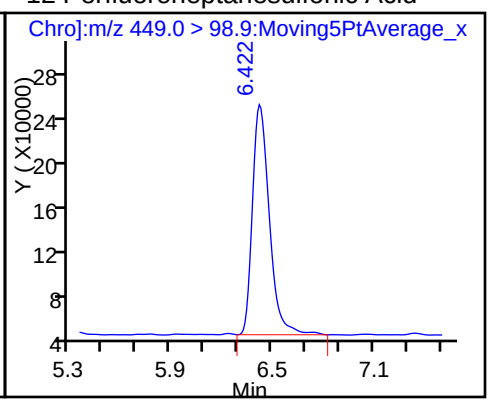
13 Perfluoroheptane Sulfonate



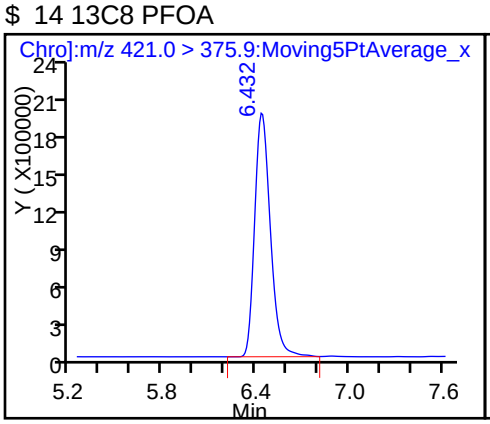
12 Perfluoroheptanesulfonic Acid



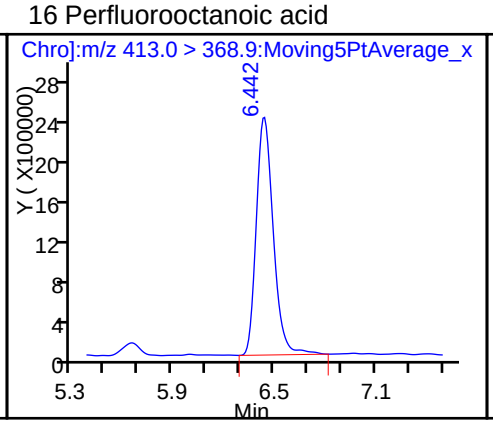
12 Perfluoroheptanesulfonic Acid



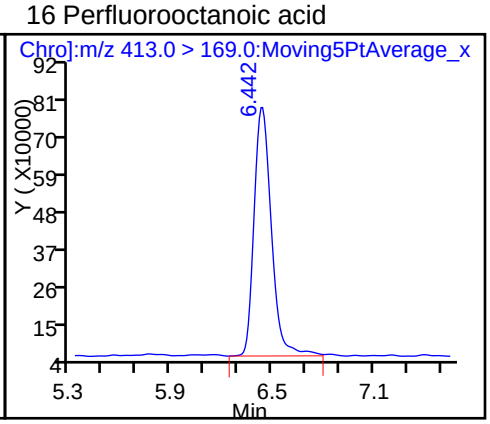
$ 14 13C8 PFOA



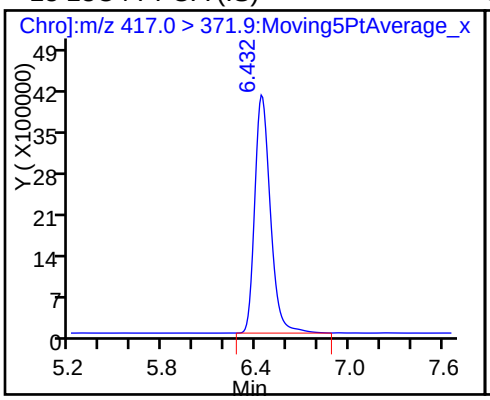
16 Perfluorooctanoic acid



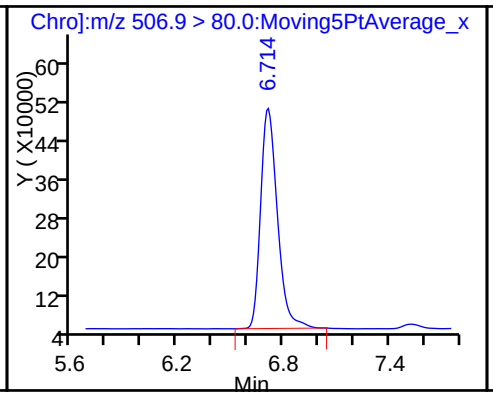
16 Perfluorooctanoic acid



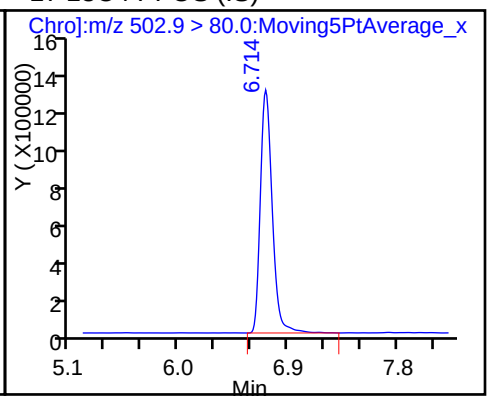
* 15 13C4 PFOA (IS)



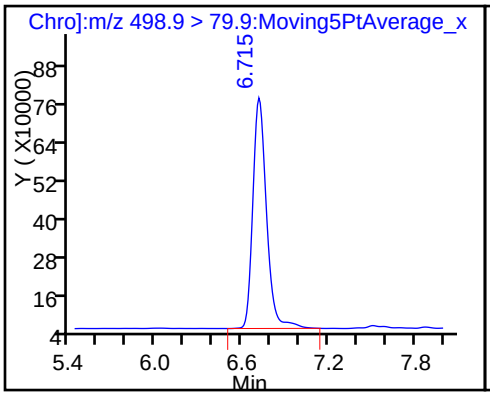
$ 18 13C8 PFOS



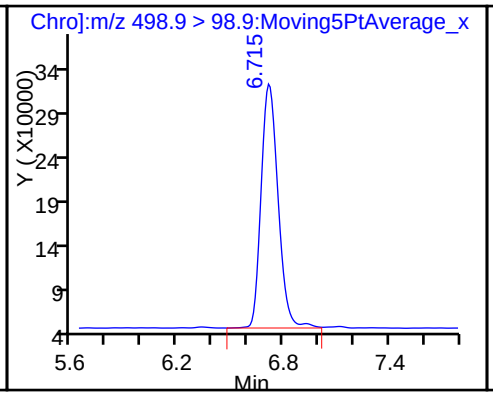
* 17 13C4 PFOS (IS)



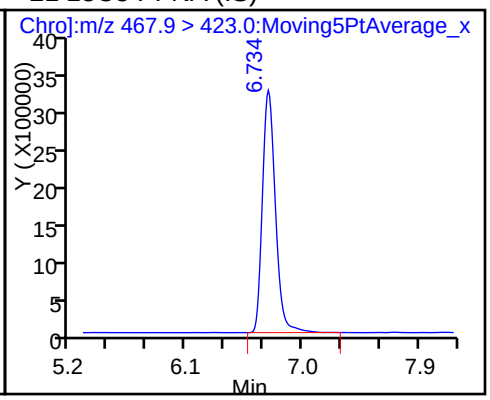
19 Perfluorooctane sulfonic acid



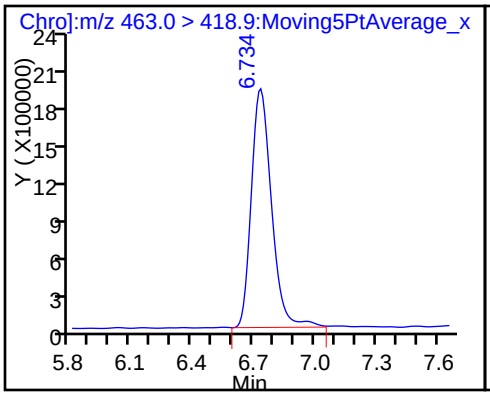
19 Perfluorooctane sulfonic acid



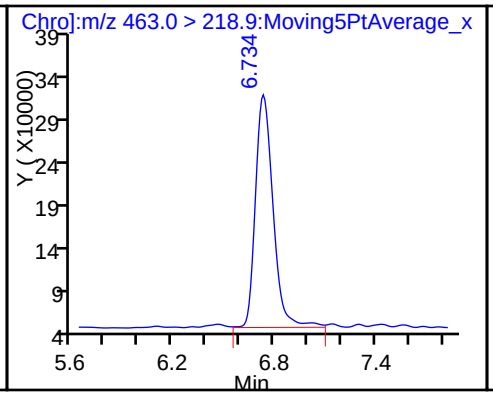
* 21 13C5 PFNA (IS)



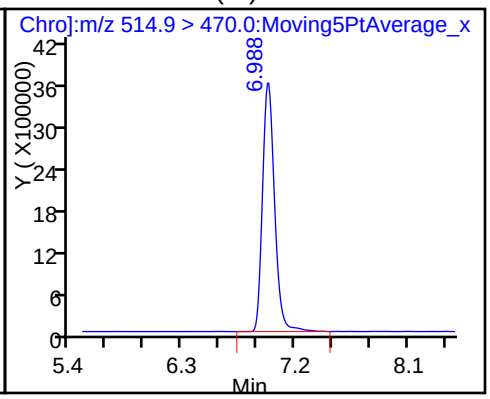
20 Perfluorononanoic acid



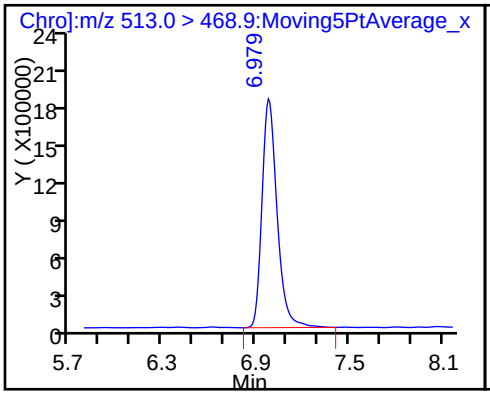
20 Perfluorononanoic acid



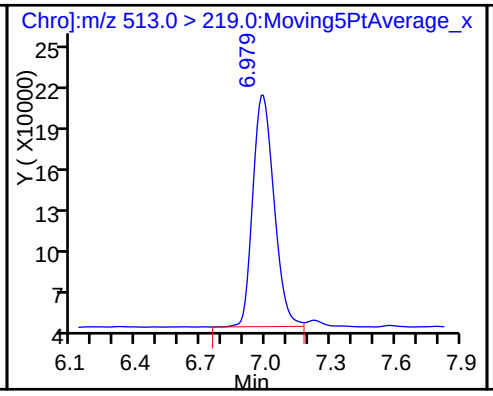
* 22 13C2 PFDA (IS)



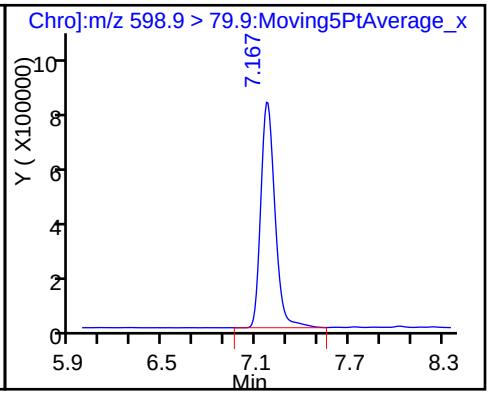
23 Perfluorodecanoic acid



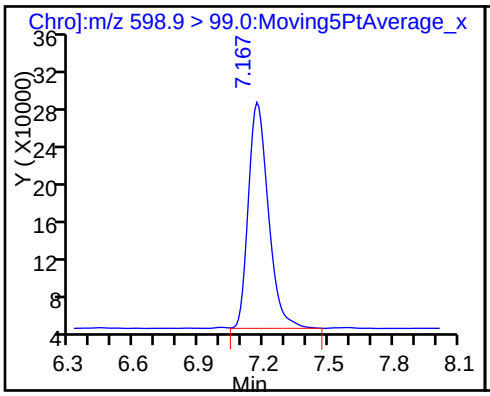
23 Perfluorodecanoic acid



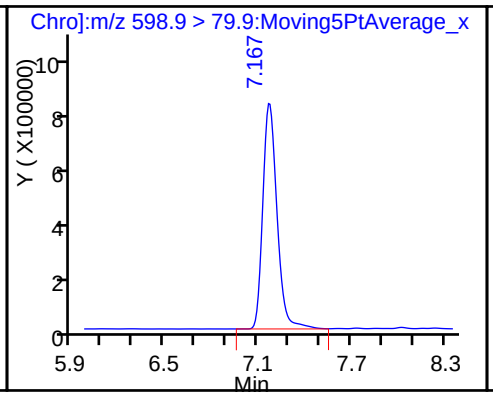
25 Perfluorodecane Sulfonate



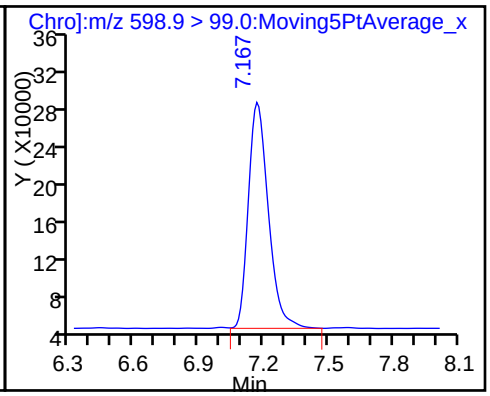
25 Perfluorodecane Sulfonate



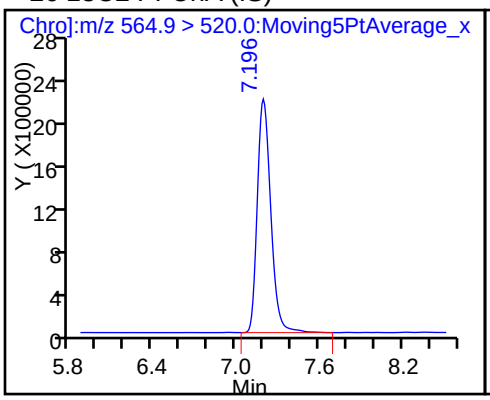
24 Perfluorodecane Sulfonic acid



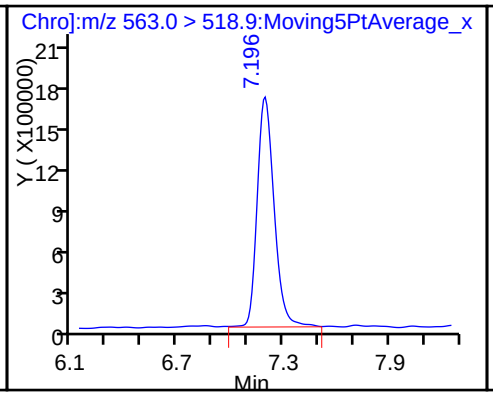
24 Perfluorodecane Sulfonic acid



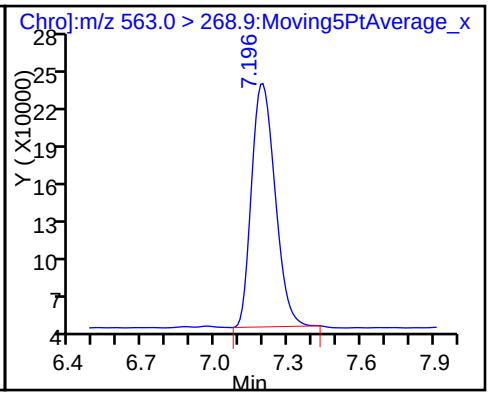
* 26 13C2 PFUnA (IS)



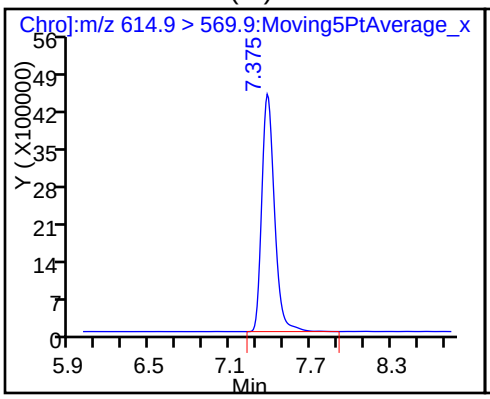
27 Perfluoroundecanoic acid



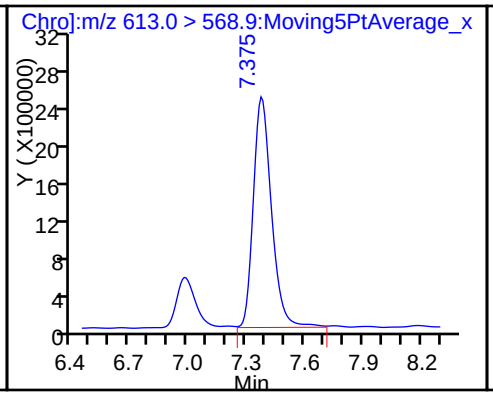
27 Perfluoroundecanoic acid



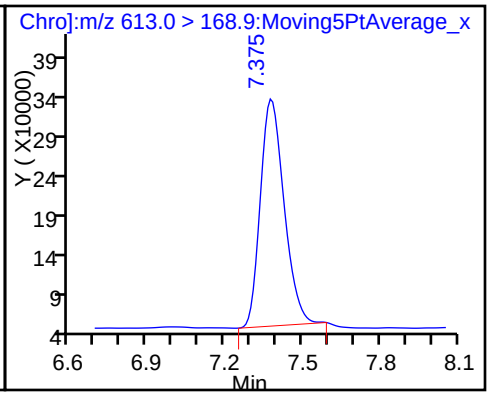
* 28 13C2 PFDoA (IS)



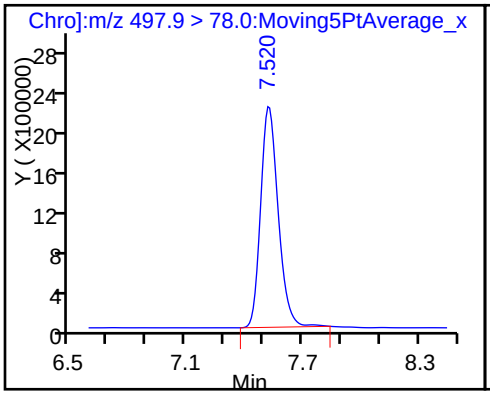
29 Perfluorododecanoic acid



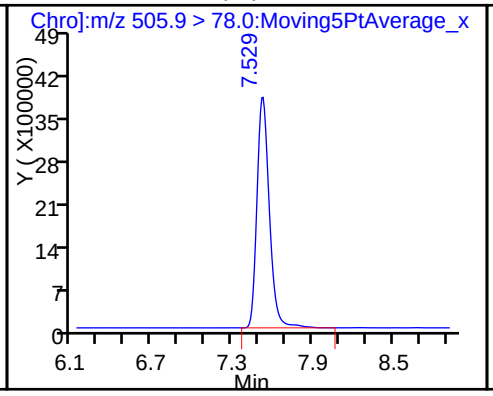
29 Perfluorododecanoic acid



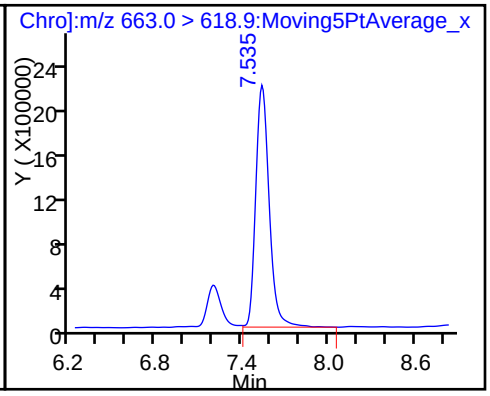
32 Perfluorooctane Sulfonamide



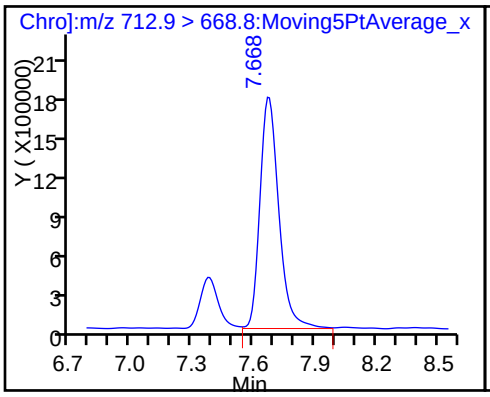
* 31 13C8 FOSA (IS)



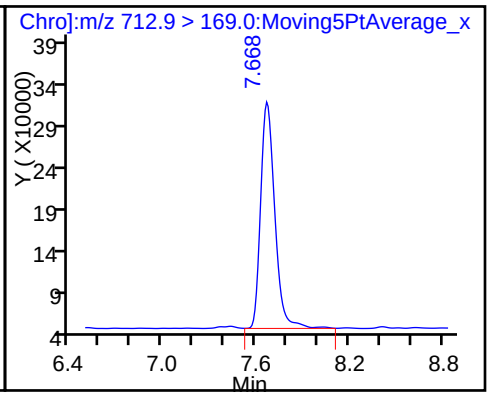
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Lab Sample ID: CCV 280-335652/3 Calibration Date: 07/28/2016 17:44

Instrument ID: LC_LCMS5 Calib Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calib End Date: 06/06/2016 16:28

Lab File ID: PC516G28047.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	Lin2		1.126		5.25	5.00	5.0	30.0
Perfluoropentanoic acid (PFPA)	Lin2		1.223		5.19	5.00	3.7	30.0
Perfluorobutane Sulfonate (PFBS)	Lin2		4.827		4.09	4.43	-7.5	30.0
Perfluorobutanesulfonic acid	Lin2		4.827		4.09	4.43	-7.5	30.0
Perfluorohexanoic acid (PFHxA)	Lin2		0.9416		4.97	5.00	-0.6	30.0
Perfluoroheptanoic acid (PFHpA)	Lin2		0.8316		4.76	5.00	-4.8	30.0
Perfluorohexane Sulfonate (PFHxS)	Lin2		3.907		4.73	4.73	0.0	30.0
Perfluorohexanesulfonic acid	Lin2		3.907		4.73	4.73	0.0	30.0
Perfluoroheptane Sulfonate	Lin2		1.196		4.70	4.76	-1.2	30.0
Perfluoroheptanesulfonic Acid (PFHpS)	Lin2		1.196		4.70	4.76	-1.2	30.0
Perfluorooctanoic acid (PFOA)	Lin2		1.112		5.31	5.00	6.1	30.0
Perfluorooctanesulfonic acid (PFOS)	Lin2		1.145		4.63	4.78	-3.0	30.0
Perfluorononanoic acid (PFNA)	Lin2		1.140		5.06	5.00	1.2	30.0
Perfluorodecanoic acid (PFDA)	Lin2		1.044		5.16	5.00	3.3	30.0
Perfluorodecane sulfonate (PFDS)	Lin2		1.248		4.85	4.83	0.5	30.0
Perfluorodecane Sulfonic acid	Lin2		1.248		4.85	4.83	0.5	30.0
Perfluoroundecanoic acid (PFUnA)	Lin2		1.517		5.33	5.00	6.6	30.0
Perfluorododecanoic acid (PFDoA)	Lin2		1.074		5.20	5.00	3.9	30.0
Perfluorooctane Sulfonamide (FOSA)	Lin2		1.123		5.17	5.00	3.3	30.0
Perfluorotridecanoic Acid (PFTriA)	Lin2		0.8578		4.57	5.00	-8.7	30.0
Perfluorotetradecanoic acid (PFTeA)	Lin2		0.5897		4.99	5.00	-0.3	30.0
13C8 PFOA	Lin2		0.9167		5.65	5.00	12.9	30.0
13C8 PFOS	Lin2		0.6964		5.43	4.78	13.6	30.0

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28047.d
Lims ID: CCV PFC L5
Client ID:
Sample Type: CCV
Inject. Date: 28-Jul-2016 17:44:17 ALS Bottle#: 0 Worklist Smp#: 3
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: CCV PFC L5, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 29-Jul-2016 10:36:50 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK010

First Level Reviewer: meyera Date: 29-Jul-2016 09:39:22

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.067	4.067	0.0		19709172	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	4.068	4.068	0.0	1.000	11099374	5.25			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.147	5.147	0.0	0.899	10801573	5.19			
4 Perfluorobutane Sulfonate									R
298.9 > 79.9	5.260	5.260	0.0	0.853	4854693	4.09			R
298.9 > 98.9	5.270	5.260	0.010	0.854	1245389		3.90(1.80-3.35)		
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.260	5.260	0.0	0.853	4854693	4.09			
298.9 > 98.9	5.270	5.260	0.010	0.854	1245389		3.90(2.57-2.57)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.724	5.724	0.0		17659237	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.724	5.724	0.0	1.000	8314028	4.97			
313.0 > 118.6	5.743	5.724	0.019	1.003	247453		33.60(34.05-63.23)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.159	6.159	0.0	0.946	11040779	4.76			
363.0 > 168.9	6.159	6.159	0.0	0.946	2838446		3.89(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.168	6.168	0.0		2150239	9.46			
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.168	6.168	0.0	1.000	4196435	4.73			
398.9 > 98.9	6.159	6.168	-0.009	0.999	1487590		2.82(1.85-1.85)		
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.168	6.168	0.0	1.000	4196435	4.73			R
398.9 > 98.9	6.159	6.168	-0.009	0.999	1487590		2.82(1.30-2.41)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.498	6.498	0.0	0.958	4659136	4.70			
449.0 > 98.9	6.498	6.498	0.0	0.958	1540844		3.02(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.498	6.498	0.0	0.958	4659136	4.70			
449.0 > 98.9	6.498	6.498	0.0	0.958	1540844		3.02(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.508	6.508	0.0	1.000	12171476	5.65			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.508	6.508	0.0		26554034	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.508	6.508	0.0	1.000	14765458	5.30			
413.0 > 169.0	6.508	6.508	0.0	1.000	4953446		2.98(2.86-5.31)		
19 Perfluorooctane sulfonic acid									
498.9 > 79.9	6.781	6.781	0.0	1.000	4474930	4.63			
498.9 > 98.9	6.781	6.781	0.0	1.000	1908722		2.34(1.31-2.43)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.780	6.780	0.0	1.000	2723778	5.43			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.781	6.781	0.0		7823007	9.56			
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.801	6.801	0.0		20576536	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.801	6.801	0.0	1.000	11725868	5.06			
463.0 > 218.9	6.801	6.801	0.0	1.000	1684913		6.96(5.59-10.38)		
23 Perfluorodecanoic acid									
513.0 > 468.9	7.045	7.045	0.0	1.000	11268785	5.16			
513.0 > 219.0	7.045	7.045	0.0	1.000	1068441		10.55(10.49-19.48)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.045	7.045	0.0		21591742	10.0			
25 Perfluorodecane Sulfonate									R
598.9 > 79.9	7.233	7.233	0.0	1.067	4927878	4.85			R
598.9 > 99.0	7.233	7.233	0.0	1.067	1330632		3.70(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.233	7.233	0.0	1.067	4927878	4.85			
598.9 > 99.0	7.233	7.233	0.0	1.067	1330632		3.70(2.84-2.84)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.262	7.262	0.0		13297549	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.262	7.262	0.0	1.000	10087897	5.33			R
563.0 > 268.9	7.262	7.262	0.0	1.000	1264292		7.98(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.441	7.441	0.0		27676648	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.441	7.441	0.0	1.000	14856080	5.20			
613.0 > 168.9	7.441	7.441	0.0	1.000	2056691		7.22(5.96-11.06)		
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.558	7.558	0.0	1.000	10915837	5.17			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.557	7.557	0.0		19445601	10.0			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.602	7.602	0.0	1.022	11871084	4.57			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.734	7.734	0.0	1.039	8160656	4.99			
712.9 > 169.0	7.734	7.734	0.0	1.039	1299090		6.28(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Reagents:

PFC-LCS_00078	Amount Added: 10.00	Units: uL
PFC_Surr_00021	Amount Added: 10.00	Units: uL
PFC-IS_00021	Amount Added: 20.00	Units: uL

Report Date: 29-Jul-2016 10:36:51 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28047.d

Injection Date: 28-Jul-2016 17:44:17 Instrument ID: LC_LCMS5

Lims ID: CCV PFC L5

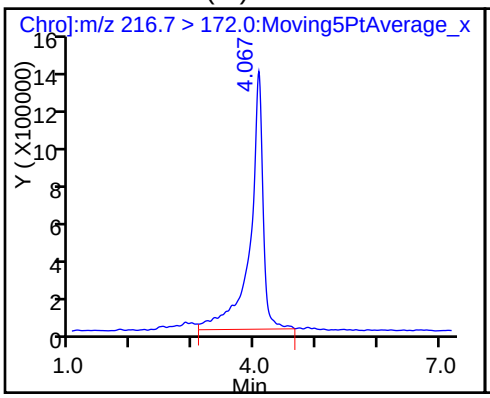
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 3

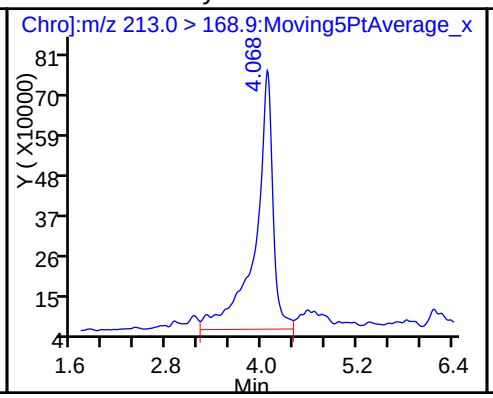
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

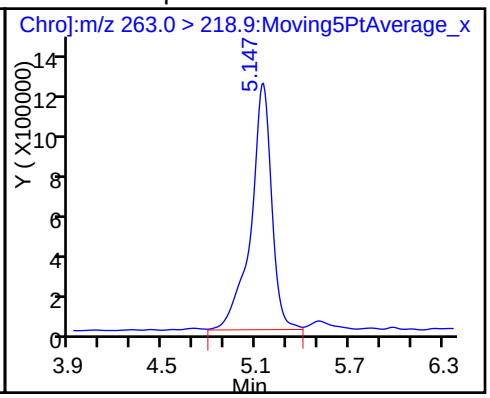
* 1 13C4 PFBA (IS)



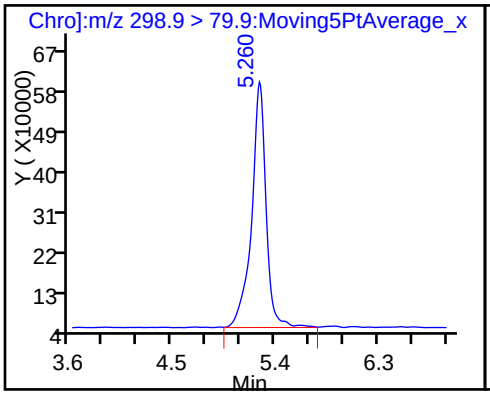
2 Perfluorobutyric acid



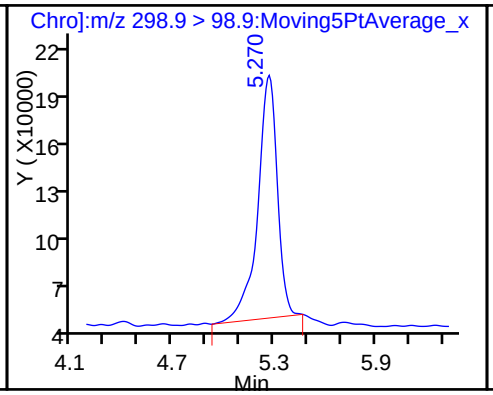
3 Perfluoropentanoic acid



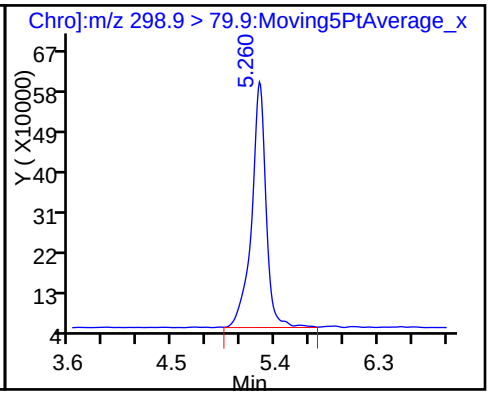
4 Perfluorobutane Sulfonate



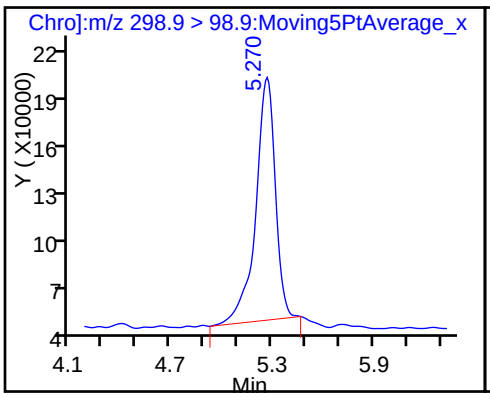
4 Perfluorobutane Sulfonate



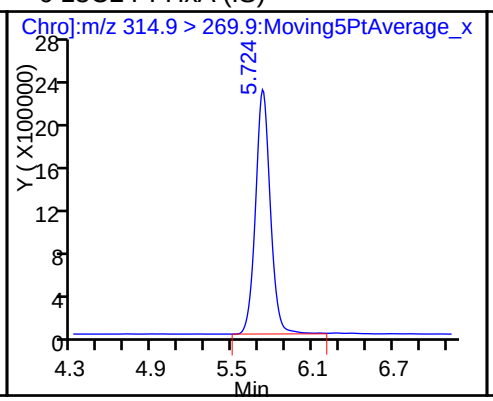
5 Perfluorobutanesulfonic acid



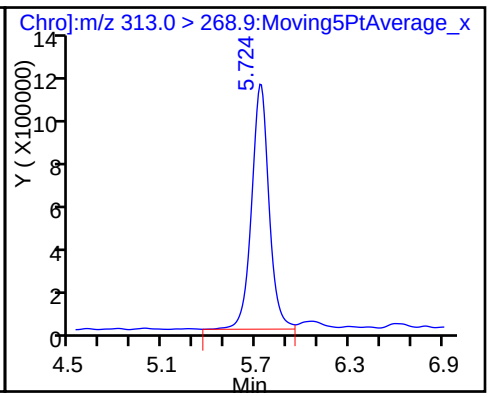
5 Perfluorobutanesulfonic acid



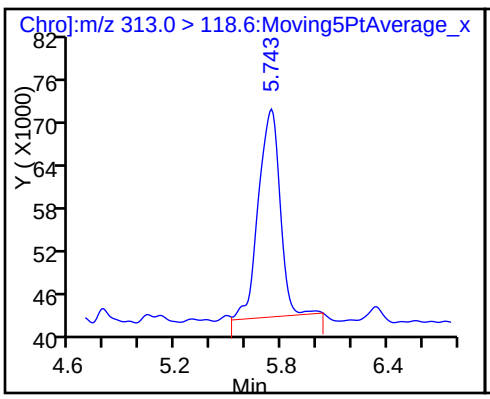
* 6 13C2 PFHxA (IS)



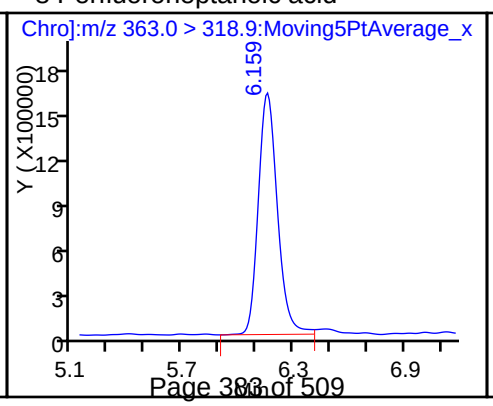
7 Perfluorohexanoic acid



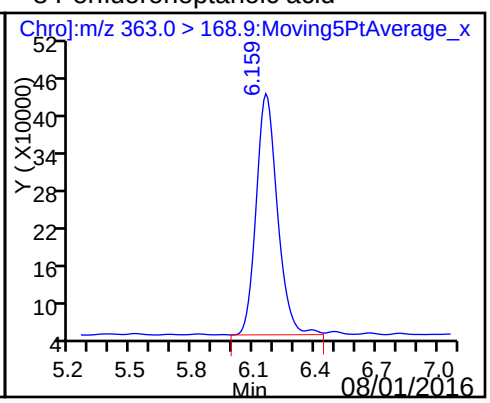
7 Perfluorohexanoic acid



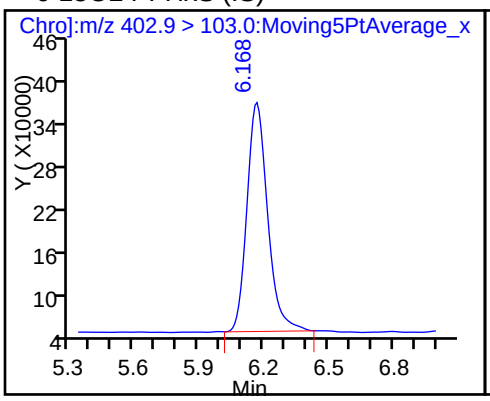
8 Perfluoroheptanoic acid



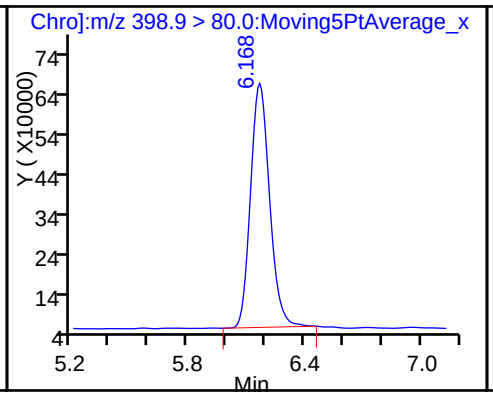
8 Perfluoroheptanoic acid



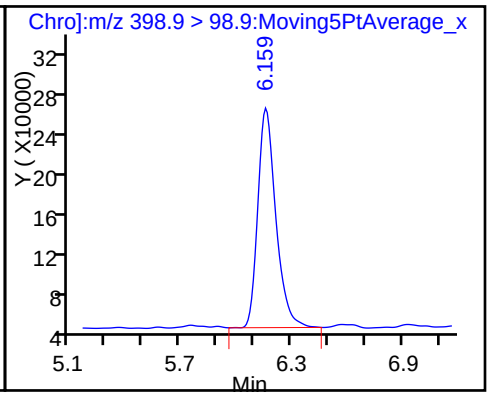
* 9 18O2 PFHxS (IS)



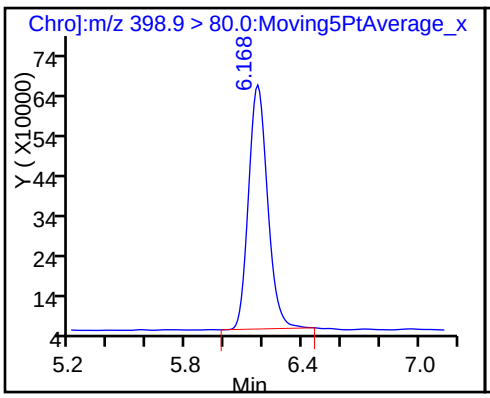
11 Perfluorohexanesulfonic acid



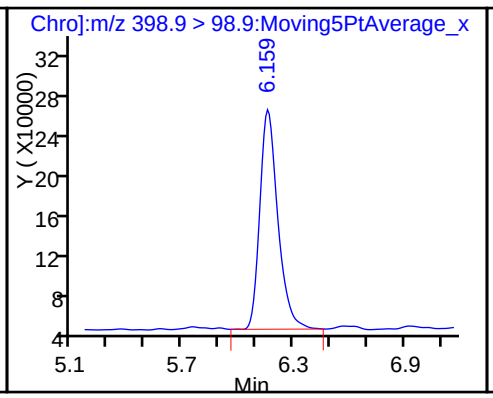
11 Perfluorohexanesulfonic acid



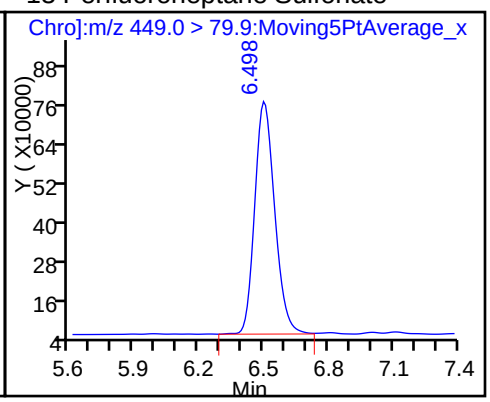
10 Perfluorohexane Sulfonate



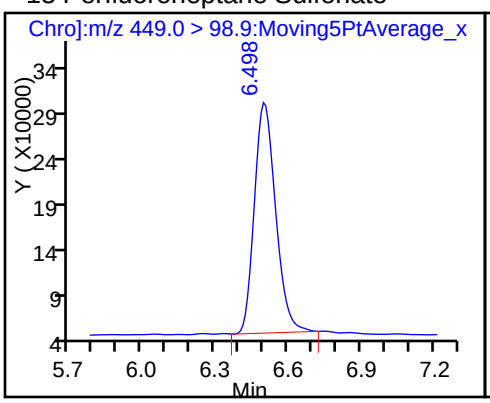
10 Perfluorohexane Sulfonate



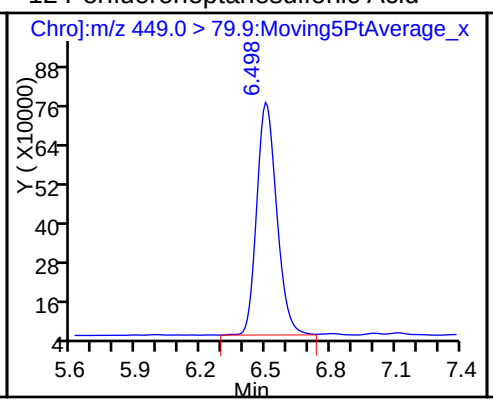
13 Perfluoroheptane Sulfonate



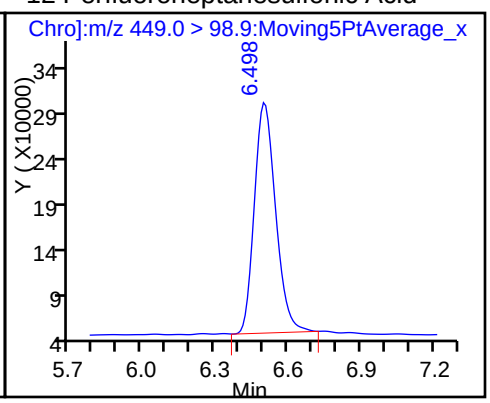
13 Perfluoroheptane Sulfonate



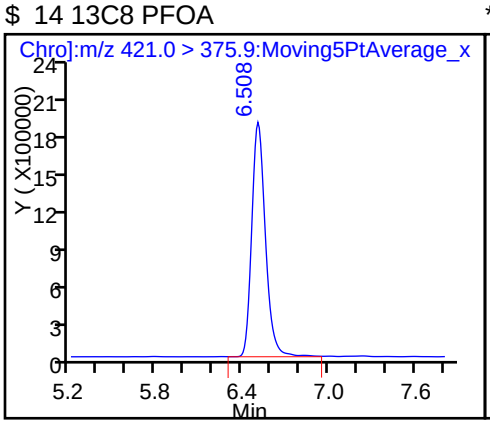
12 Perfluoroheptanesulfonic Acid



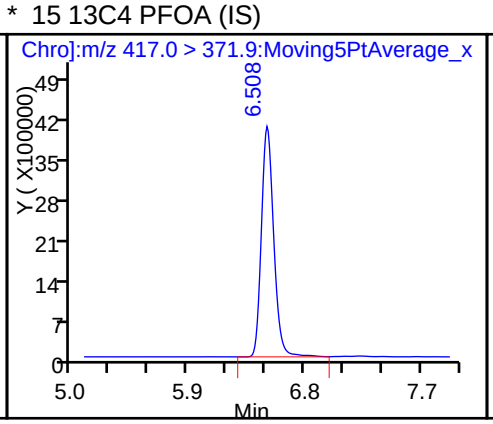
12 Perfluoroheptanesulfonic Acid



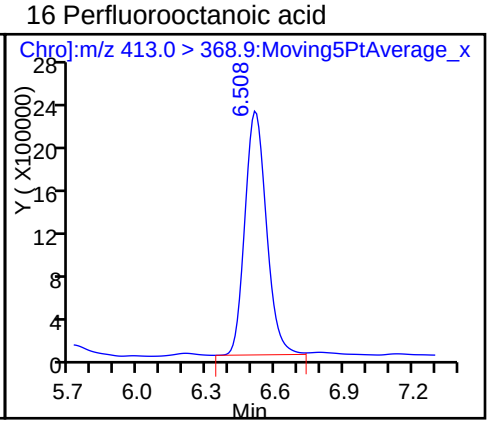
$ 14 13C8 PFOA



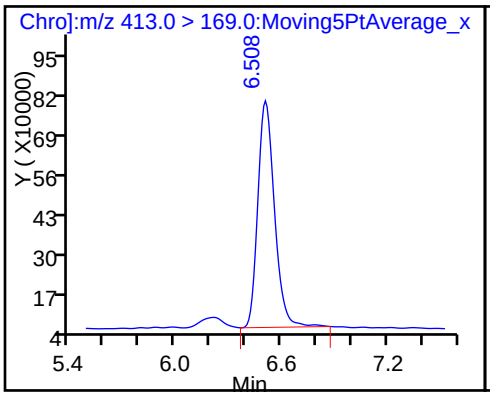
* 15 13C4 PFOA (IS)



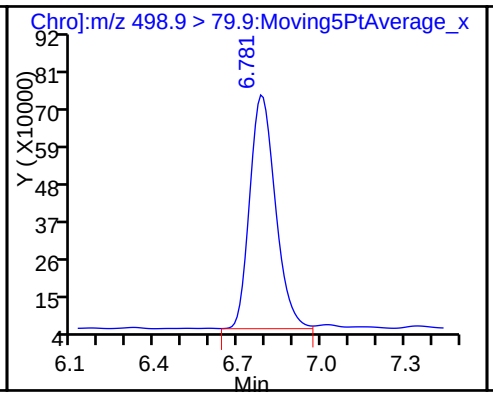
16 Perfluorooctanoic acid



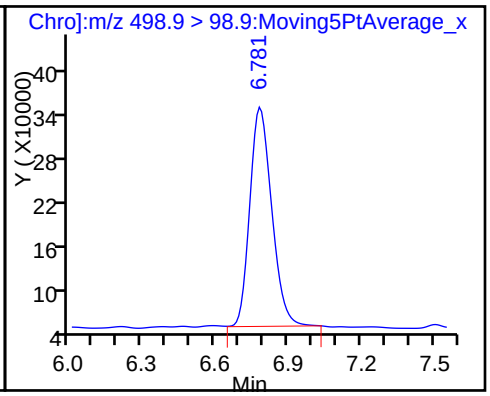
16 Perfluorooctanoic acid



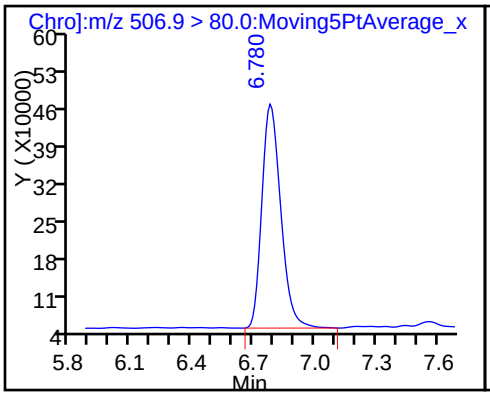
19 Perfluorooctane sulfonic acid



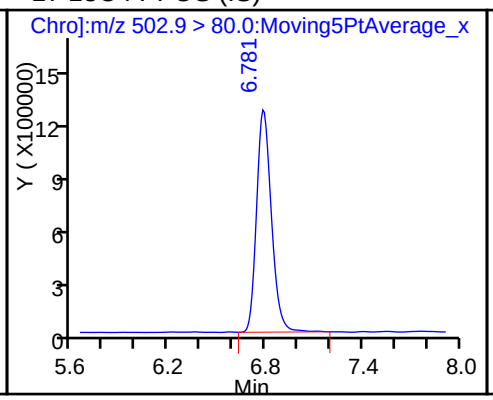
19 Perfluorooctane sulfonic acid



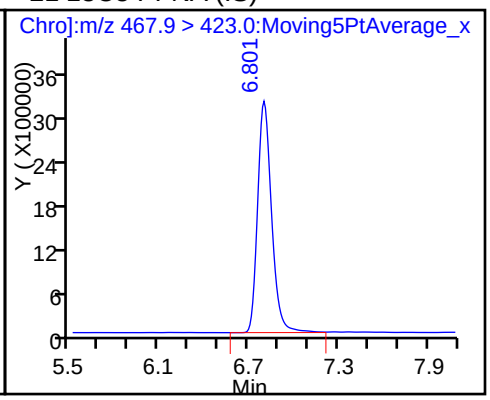
$ 18 13C8 PFOS



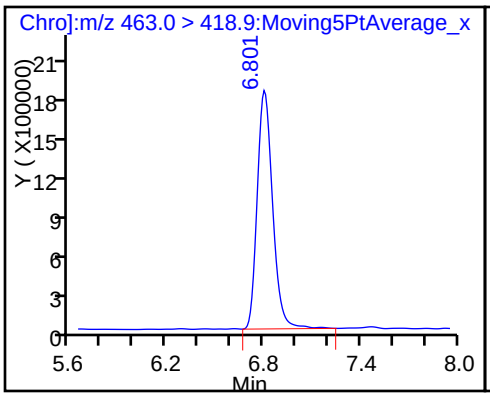
* 17 13C4 PFOS (IS)



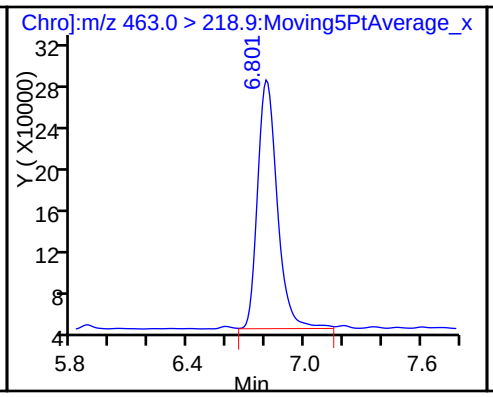
* 21 13C5 PFNA (IS)



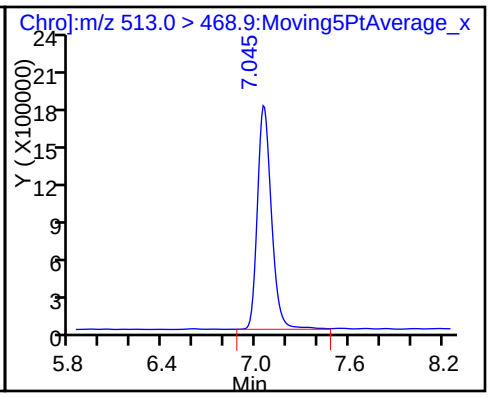
20 Perfluorononanoic acid



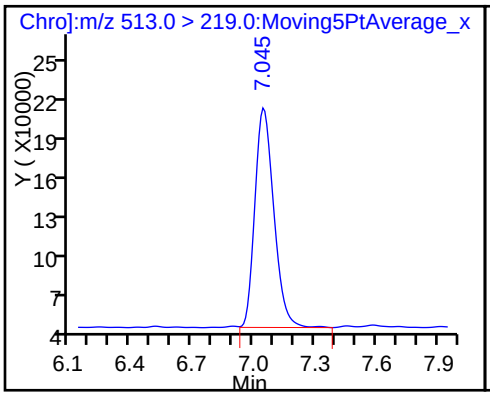
20 Perfluorononanoic acid



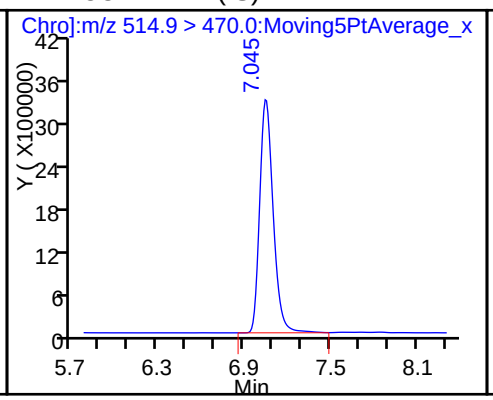
23 Perfluorodecanoic acid



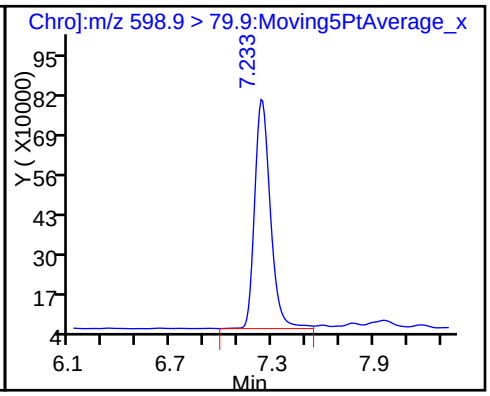
23 Perfluorodecanoic acid



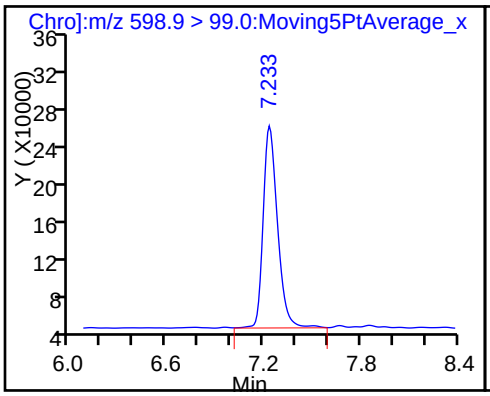
* 22 13C2 PFDA (IS)



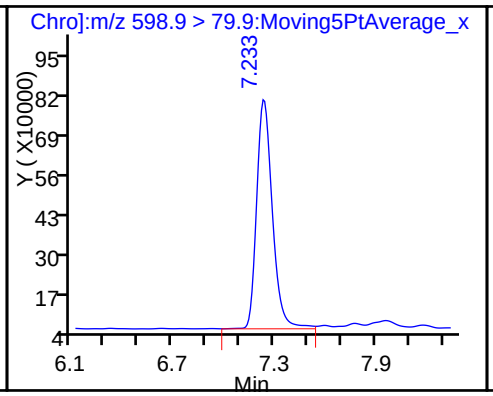
25 Perfluorodecane Sulfonate



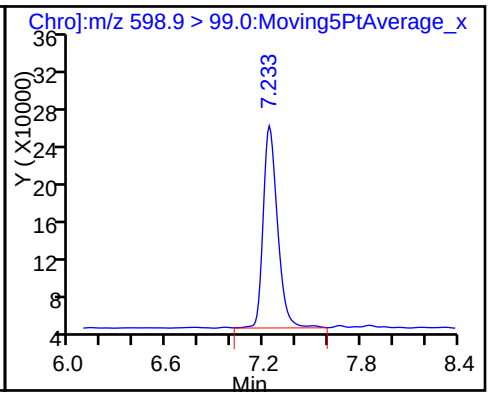
25 Perfluorodecane Sulfonate



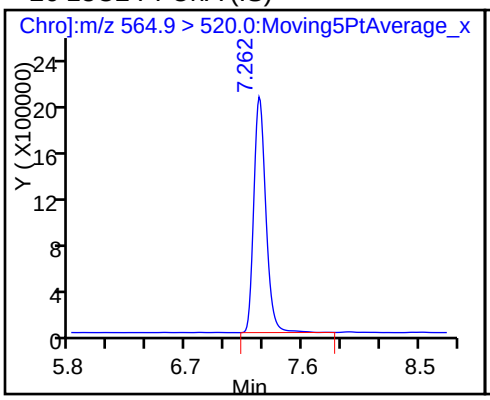
24 Perfluorodecane Sulfonic acid



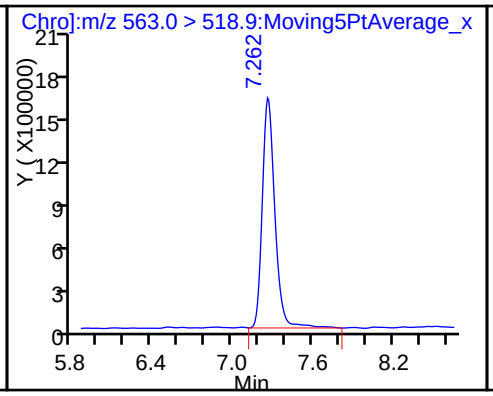
24 Perfluorodecane Sulfonic acid



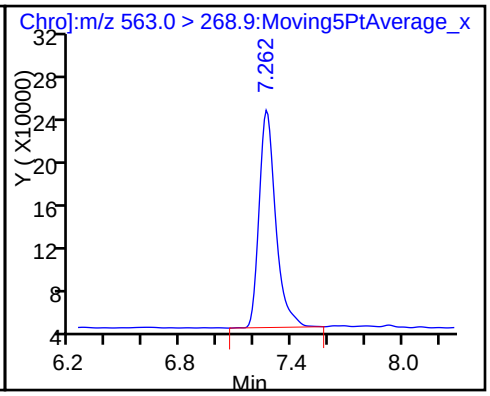
* 26 13C2 PFUnA (IS)



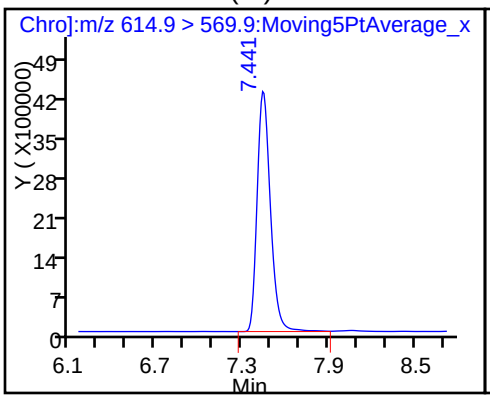
27 Perfluoroundecanoic acid



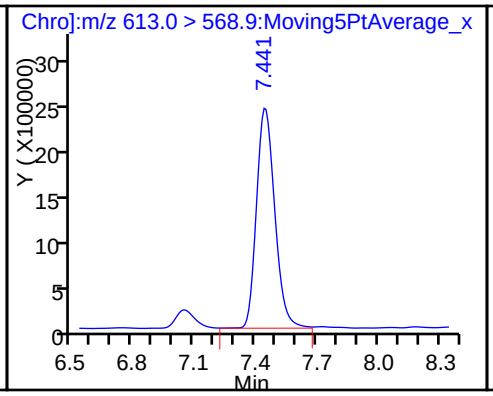
27 Perfluoroundecanoic acid



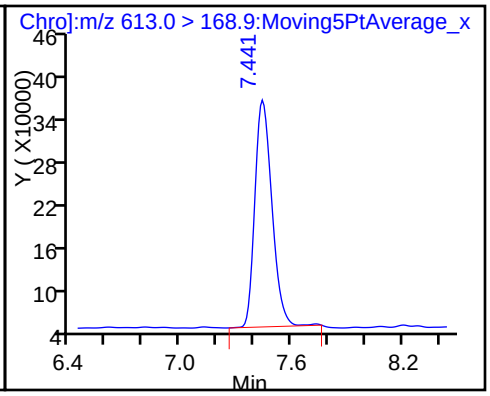
* 28 13C2 PFDoA (IS)



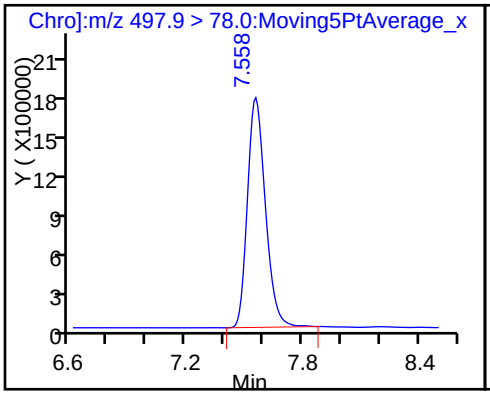
29 Perfluorododecanoic acid



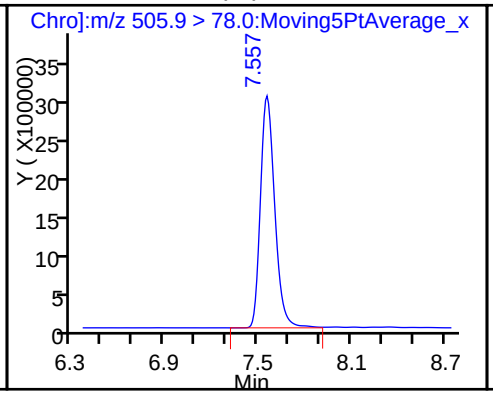
29 Perfluorododecanoic acid



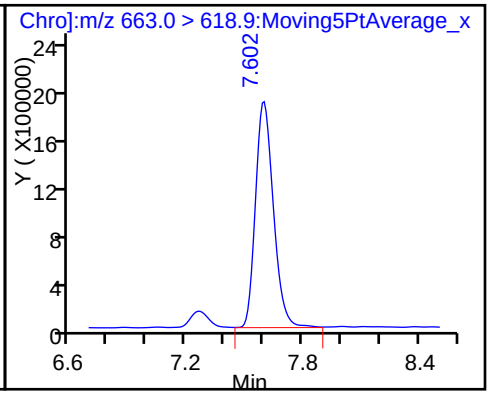
32 Perfluorooctane Sulfonamide



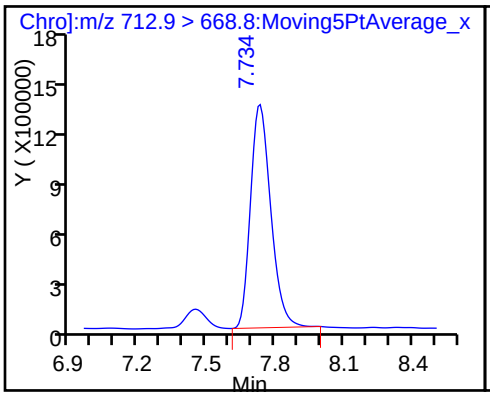
* 31 13C8 FOSA (IS)



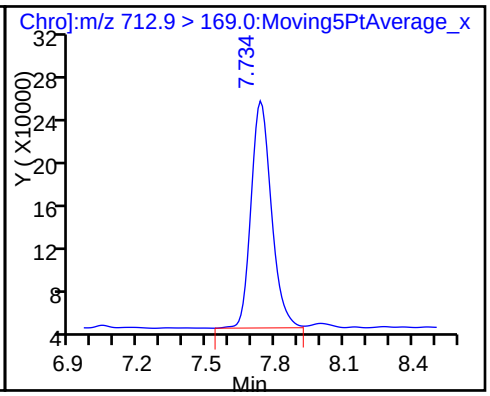
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Lab Sample ID: CCV 280-335652/14 Calibration Date: 07/28/2016 19:59

Instrument ID: LC_LCMS5 Calib Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calib End Date: 06/06/2016 16:28

Lab File ID: PC516G28058.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	Lin2		0.9522		8.88	10.0	-11.2	30.0
Perfluoropentanoic acid (PFPA)	Lin2		1.254		10.7	10.0	6.6	30.0
Perfluorobutane Sulfonate (PFBS)	Lin2		4.948		8.38	8.85	-5.3	30.0
Perfluorobutanesulfonic acid	Lin2		4.948		8.38	8.85	-5.3	30.0
Perfluorohexanoic acid (PFHxA)	Lin2		1.001		10.6	10.0	5.9	30.0
Perfluoroheptanoic acid (PFHpA)	Lin2		0.8100		9.31	10.0	-6.9	30.0
Perfluorohexane Sulfonate (PFHxS)	Lin2		4.310		10.5	9.45	11.5	30.0
Perfluorohexanesulfonic acid	Lin2		4.310		10.5	9.45	11.5	30.0
Perfluoroheptane Sulfonate	Lin2		1.104		8.67	9.52	-8.9	30.0
Perfluoroheptanesulfonic Acid (PFHpS)	Lin2		1.104		8.67	9.52	-8.9	30.0
Perfluorooctanoic acid (PFOA)	Lin2		1.053		10.1	10.0	1.1	30.0
Perfluorooctanesulfonic acid (PFOS)	Lin2		1.108		9.02	9.55	-5.5	30.0
Perfluorononanoic acid (PFNA)	Lin2		1.133		10.1	10.0	1.0	30.0
Perfluorodecanoic acid (PFDA)	Lin2		0.9640		9.57	10.0	-4.3	30.0
Perfluorodecane sulfonate (PFDS)	Lin2		1.091		8.51	9.65	-11.9	30.0
Perfluorodecane Sulfonic acid	Lin2		1.091		8.51	9.65	-11.9	30.0
Perfluoroundecanoic acid (PFUnA)	Lin2		1.350		9.52	10.0	-4.8	30.0
Perfluorododecanoic acid (PFDoA)	Lin2		1.028		10.0	10.0	0.0	30.0
Perfluorotridecanoic Acid (PFTriA)	Lin2		0.8684		9.33	10.0	-6.7	30.0
Perfluorooctane Sulfonamide (FOSA)	Lin2		1.117		10.3	10.0	2.9	30.0
Perfluorotetradecanoic acid (PFTeA)	Lin2		0.5850		9.90	10.0	-1.0	30.0
13C8 PFOA	Lin2		0.7525		9.30	10.0	-7.0	30.0
13C8 PFOS	Lin2		0.5644		8.82	9.56	-7.7	30.0

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28058.d
Lims ID: CCV PFC L6
Client ID:
Sample Type: CCV
Inject. Date: 28-Jul-2016 19:59:38 ALS Bottle#: 0 Worklist Smp#: 14
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: CCV PFC L6, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 29-Jul-2016 10:37:26 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK010

First Level Reviewer: meyera Date: 29-Jul-2016 09:44:47

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.029	4.029	0.0		18735495	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	4.030	4.030	0.0	1.000	17840234	8.88			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.109	5.109	0.0	0.897	20105950	10.7			
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.241	5.241	0.0	0.856	9727579	8.38			
298.9 > 98.9	5.241	5.241	0.0	0.856	3118200		3.12(1.80-3.35)		
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.241	5.241	0.0	0.856	9727579	8.38			
298.9 > 98.9	5.241	5.241	0.0	0.856	3118200		3.12(2.57-2.57)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.695	5.695	0.0		16035715	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.696	5.696	0.0	1.000	16058925	10.6			
313.0 > 118.6	5.686	5.696	-0.010	0.998	550808		29.16(34.05-63.23)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.112	6.112	0.0	0.946	21241335	9.31			
363.0 > 168.9	6.121	6.112	0.009	0.947	5511661		3.85(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.120	6.120	0.0		2101419	9.46			
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.130	6.130	0.0	1.002	9048167	10.5			
398.9 > 98.9	6.130	6.130	0.0	1.002	2751393		3.29(1.85-1.85)		
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.130	6.130	0.0	1.002	9048167	10.5			R
398.9 > 98.9	6.130	6.130	0.0	1.002	2751393		3.29(1.30-2.41)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.460	6.460	0.0	0.958	9116139	8.67			
449.0 > 98.9	6.460	6.460	0.0	0.958	2793426		3.26(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.460	6.460	0.0	0.958	9116139	8.67			
449.0 > 98.9	6.460	6.460	0.0	0.958	2793426		3.26(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.470	6.470	0.0	1.001	19732756	9.30			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.461	6.461	0.0		26222655	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.461	6.461	0.0	1.000	27614774	10.1			
413.0 > 169.0	6.461	6.461	0.0	1.000	8527432		3.24(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.742	6.742	0.0	1.000	4680780	8.82			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.743	6.743	0.0		8293633	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.743	6.743	0.0	1.000	9175745	9.02			R
498.9 > 98.9	6.743	6.743	0.0	1.000	3563383		2.58(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.753	6.753	0.0		19594169	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.753	6.753	0.0	1.000	22201754	10.1			
463.0 > 218.9	6.753	6.753	0.0	1.000	3113651		7.13(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.007	7.007	0.0		21340245	10.0			
23 Perfluorodecanoic acid									R
513.0 > 468.9	7.007	7.007	0.0	1.000	20572812	9.57			R
513.0 > 219.0	7.007	7.007	0.0	1.000	2134949		9.64(10.49-19.48)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.186	7.186	0.0	1.066	9132044	8.51			
598.9 > 99.0	7.186	7.186	0.0	1.066	2719413		3.36(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.186	7.186	0.0	1.066	9132044	8.51			
598.9 > 99.0	7.186	7.186	0.0	1.066	2719413		3.36(2.84-2.84)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.215	7.215	0.0		13038200	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.215	7.215	0.0	1.000	17601150	9.52			R
563.0 > 268.9	7.215	7.215	0.0	1.000	2278021		7.73(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.393	7.393	0.0		28135942	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.394	7.394	0.0	1.000	28913148	10.0			
613.0 > 168.9	7.394	7.394	0.0	1.000	3669743		7.88(5.96-11.06)		
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.545	7.545	0.0	1.020	24432411	9.33			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.557	7.557	0.0		18472971	10.0			
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.558	7.558	0.0	1.000	20642978	10.3			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.677	7.677	0.0	1.038	16458761	9.90			
712.9 > 169.0	7.677	7.677	0.0	1.038	2623765		6.27(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Reagents:

PFC-IS_00021	Amount Added: 20.00	Units: uL
PFC_Surr_00021	Amount Added: 20.00	Units: uL
PFC-LCS_00078	Amount Added: 20.00	Units: uL

Report Date: 29-Jul-2016 10:37:27 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28058.d

Injection Date: 28-Jul-2016 19:59:38 Instrument ID: LC_LCMS5

Lims ID: CCV PFC L6

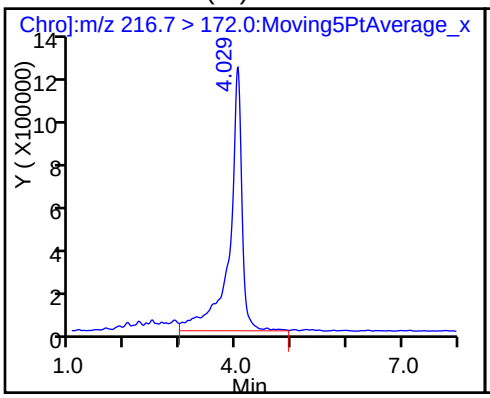
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 14

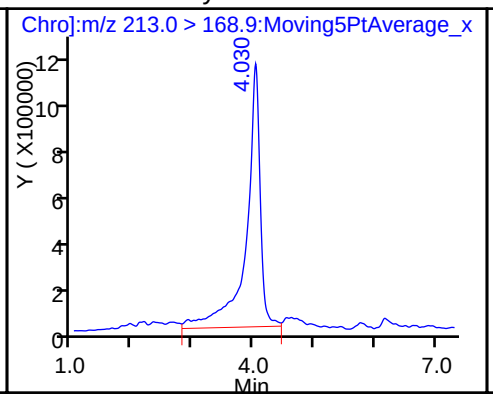
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

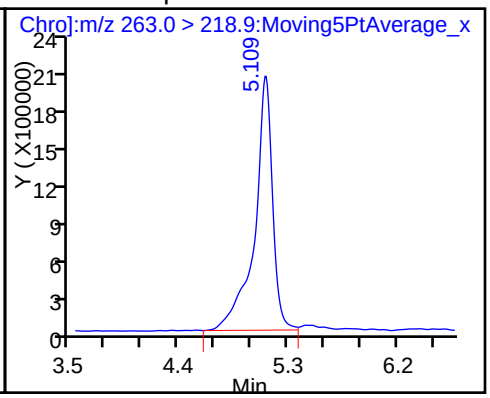
* 1 13C4 PFBA (IS)



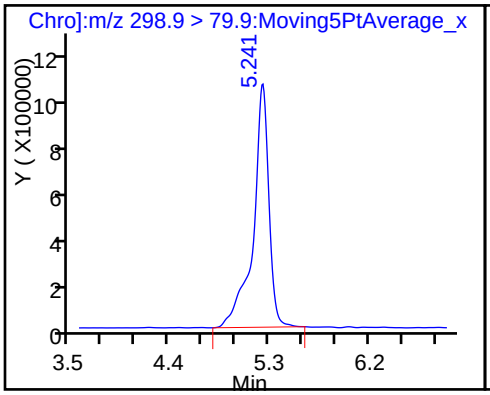
2 Perfluorobutyric acid



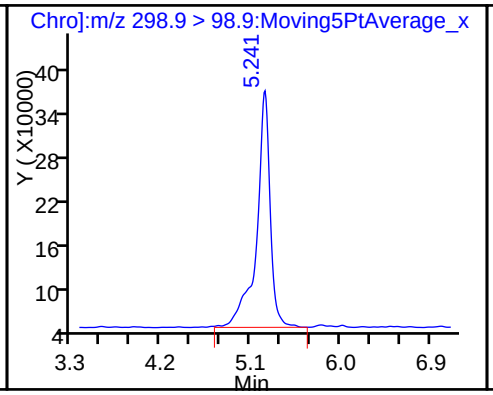
3 Perfluoropentanoic acid



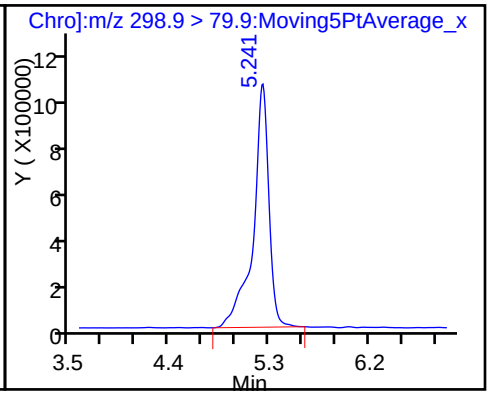
4 Perfluorobutane Sulfonate



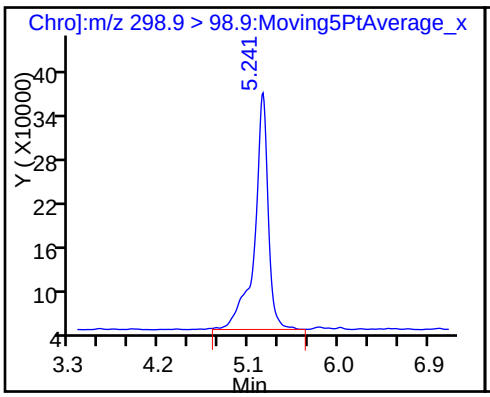
4 Perfluorobutane Sulfonate



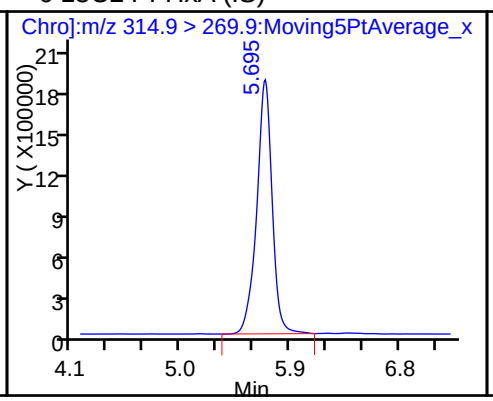
5 Perfluorobutanesulfonic acid



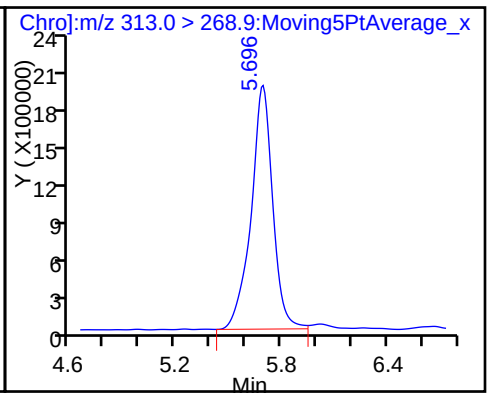
5 Perfluorobutanesulfonic acid



* 6 13C2 PFHxA (IS)



7 Perfluorohexanoic acid



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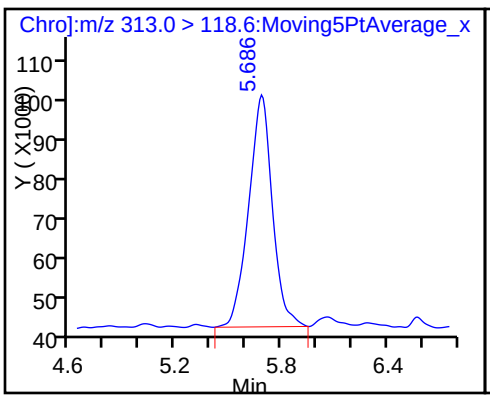

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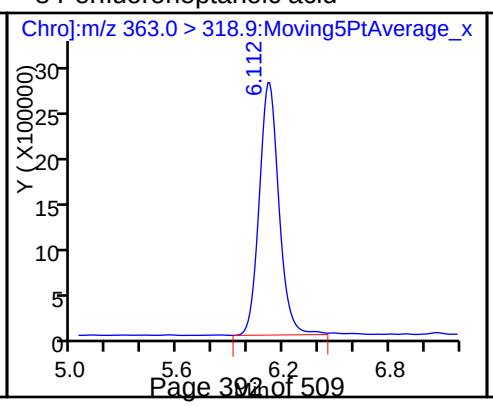

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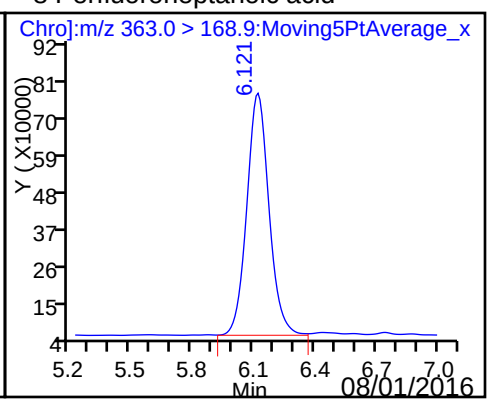
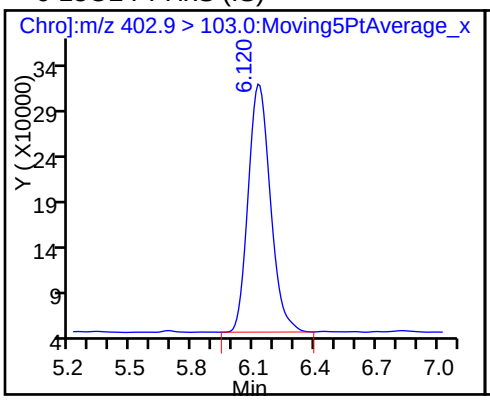


* 9 18O2 PFHxS (IS)



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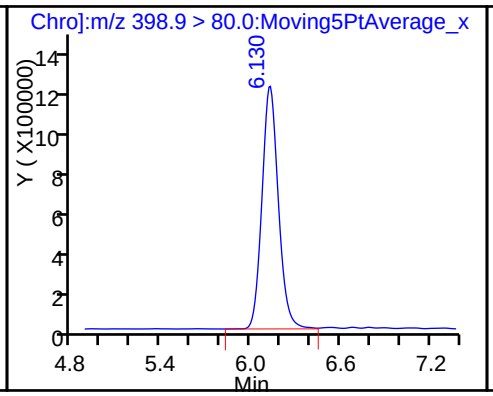
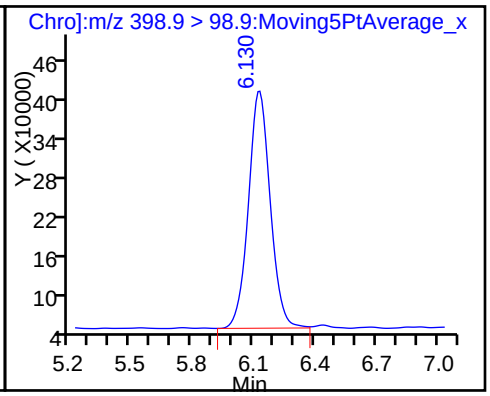
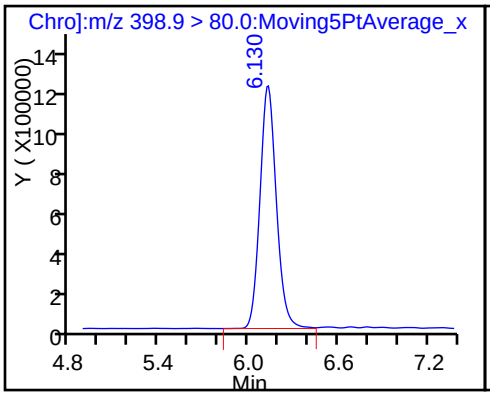


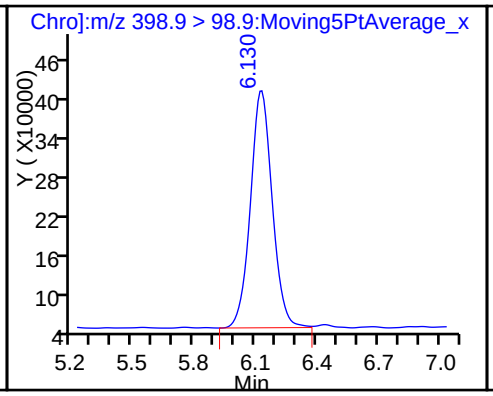
11 Perfluorohexanesulfonic acid



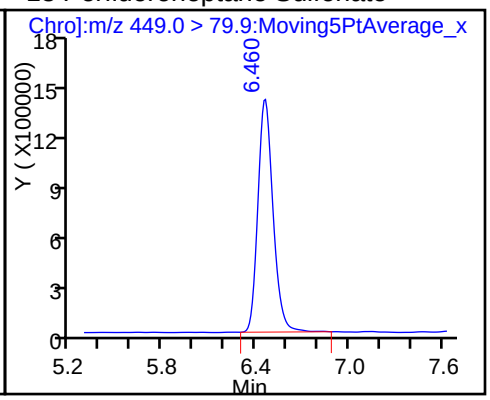
10 Perfluorohexane Sulfonate



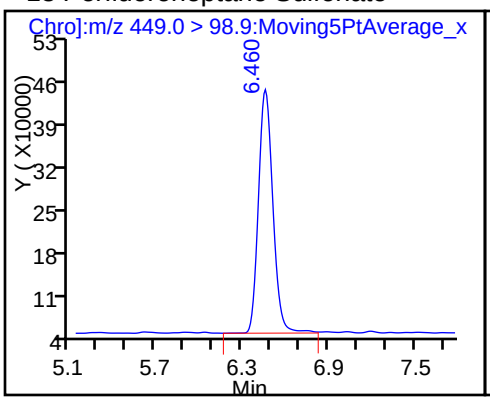
10 Perfluorohexane Sulfonate



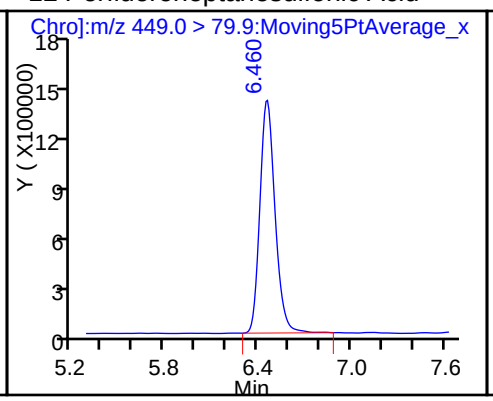
13 Perfluoroheptane Sulfonate



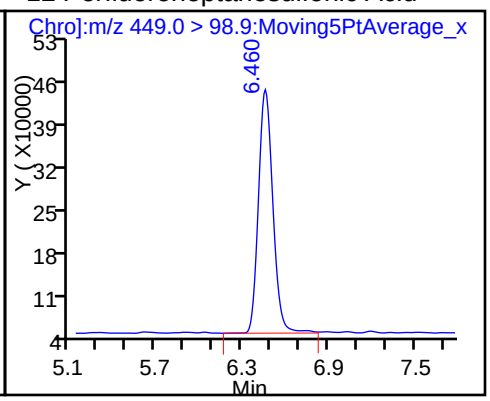
13 Perfluoroheptane Sulfonate



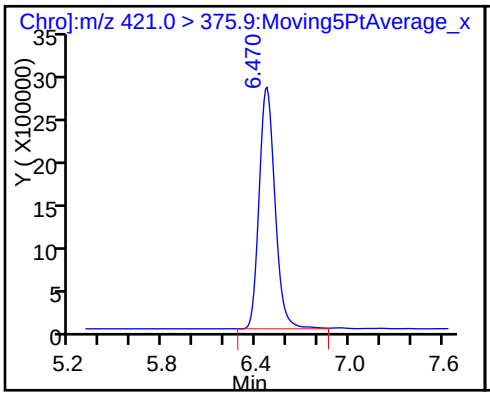
12 Perfluoroheptanesulfonic Acid



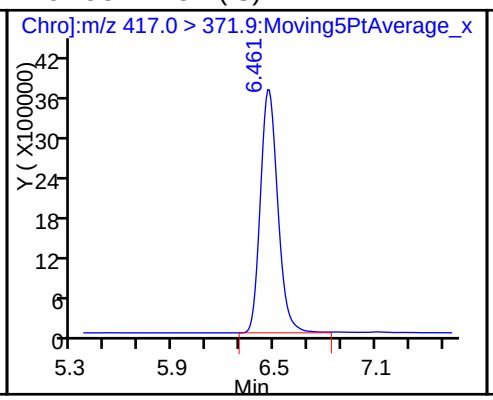
12 Perfluoroheptanesulfonic Acid



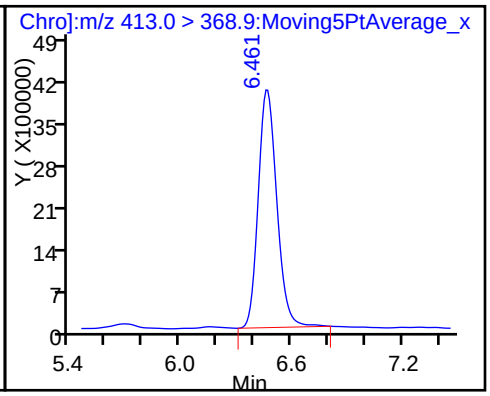
$ 14 13C8 PFOA



* 15 13C4 PFOA (IS)



16 Perfluorooctanoic acid



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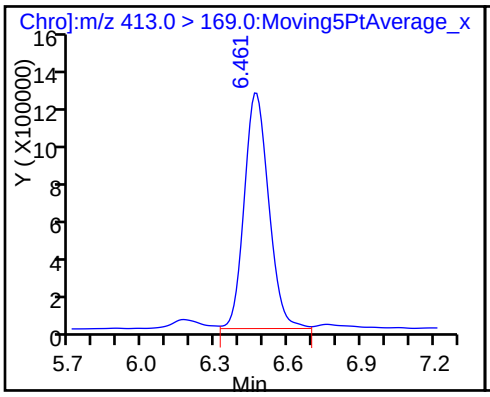
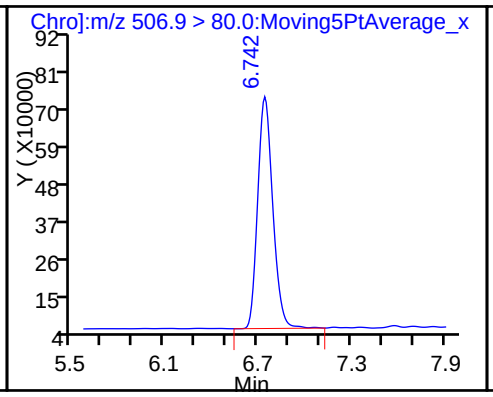
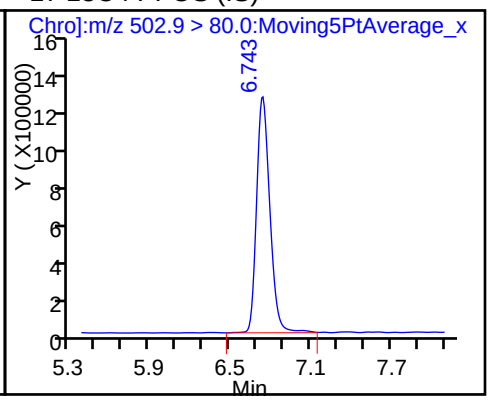


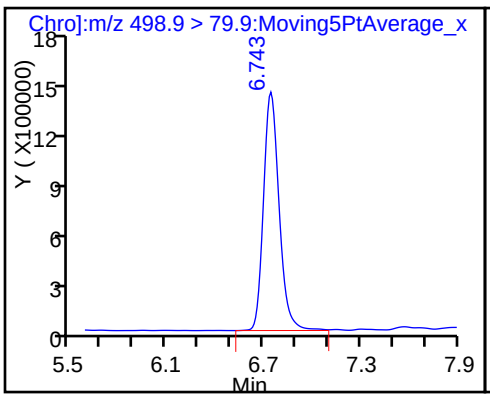
$ 18 13C8 PFOS



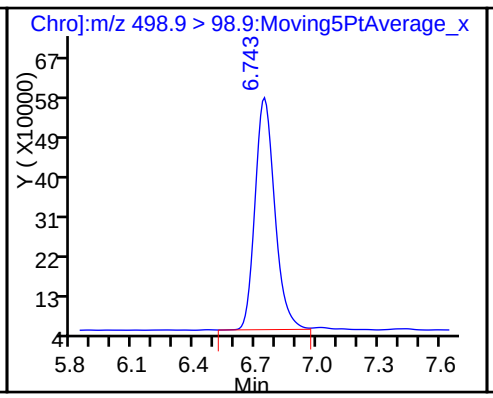
* 17 13C4 PFOS (IS)



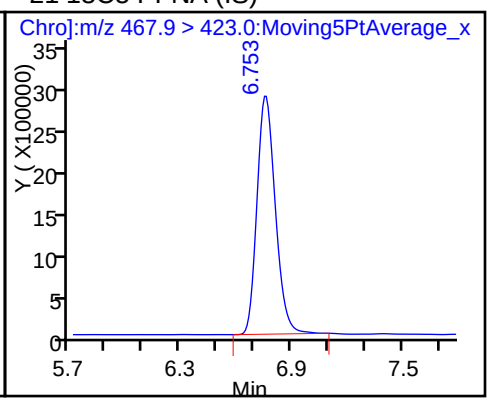
19 Perfluorooctane sulfonic acid



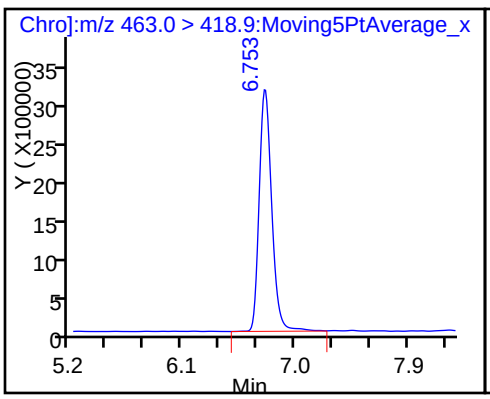
19 Perfluorooctane sulfonic acid



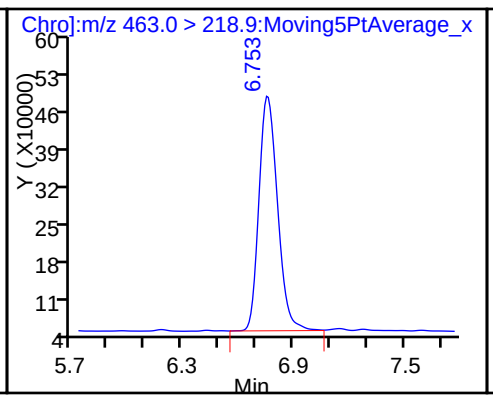
* 21 13C5 PFNA (IS)



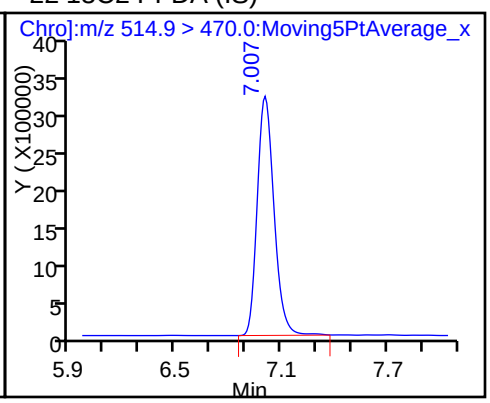
20 Perfluorononanoic acid



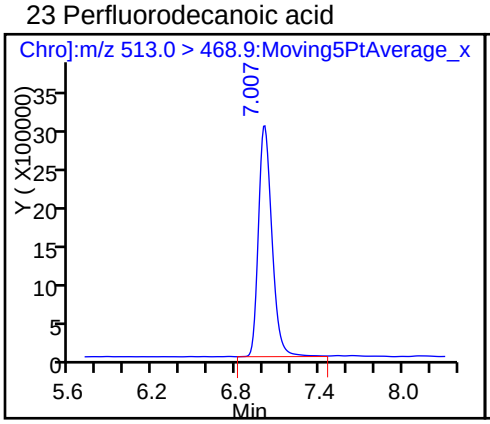
20 Perfluorononanoic acid



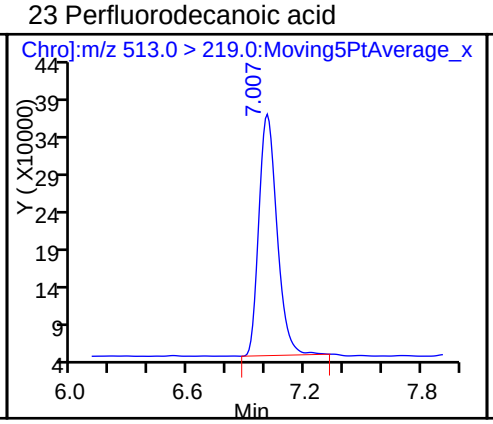
* 22 13C2 PFDA (IS)



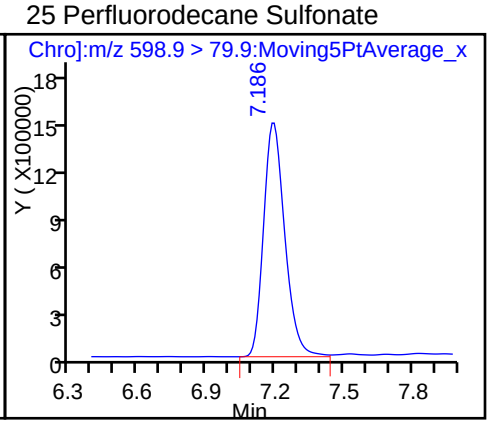
23 Perfluorodecanoic acid



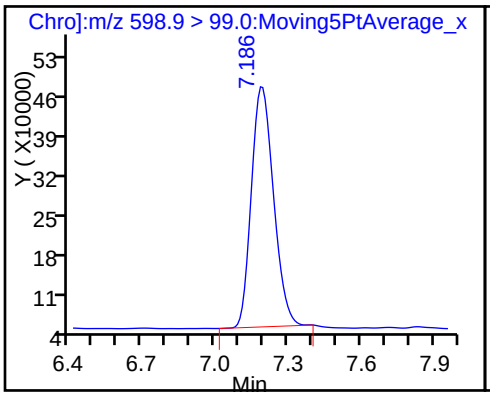
23 Perfluorodecanoic acid



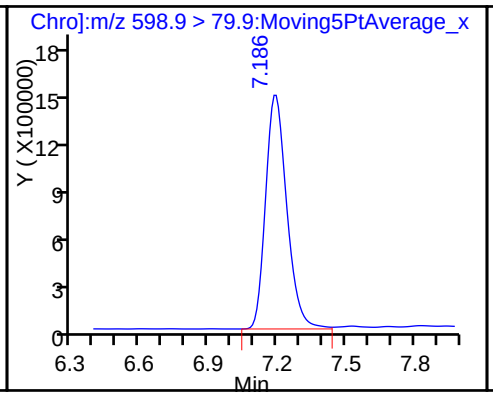
25 Perfluorodecane Sulfonate



25 Perfluorodecane Sulfonate



24 Perfluorodecane Sulfonic acid



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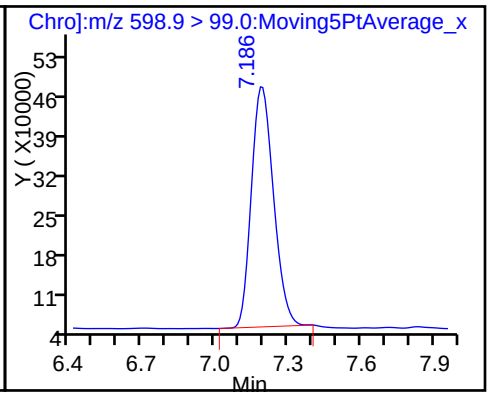
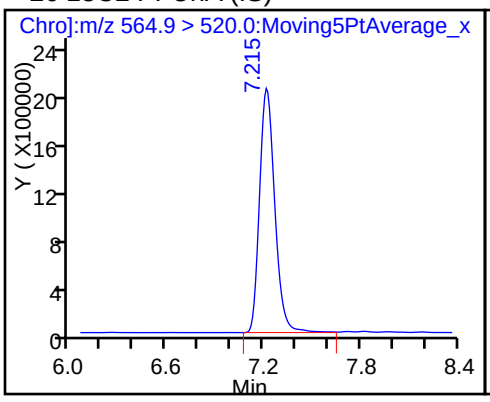
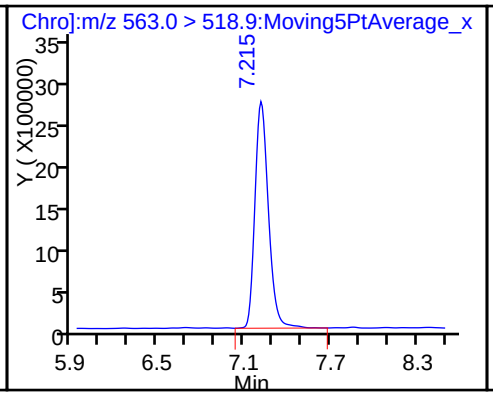


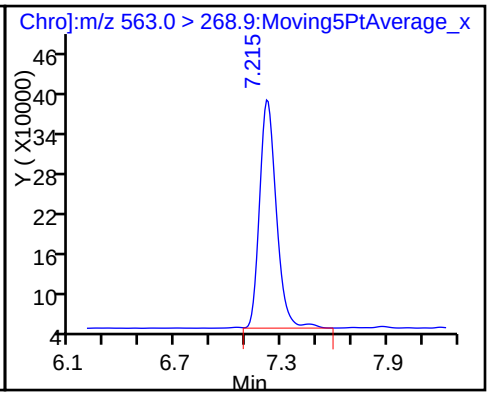
* 26 13C2 PFUnA (IS)



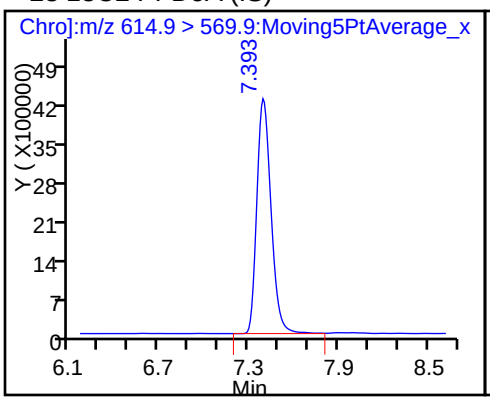
27 Perfluoroundecanoic acid



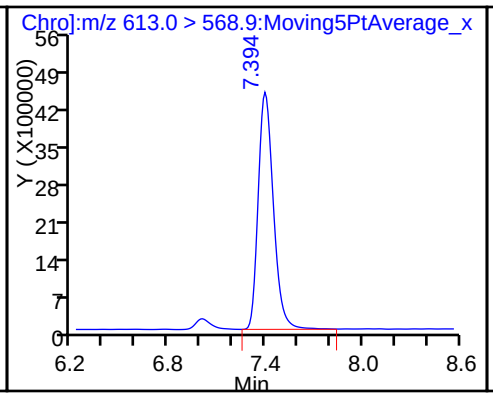
27 Perfluoroundecanoic acid



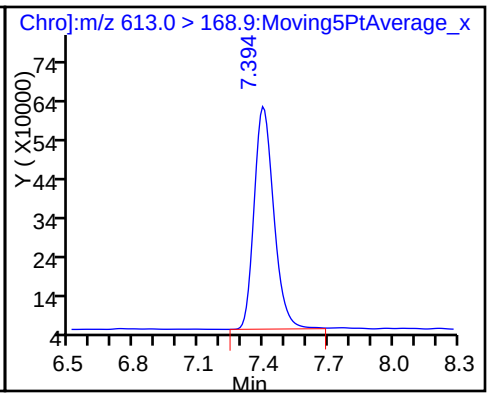
* 28 13C2 PFDoA (IS)



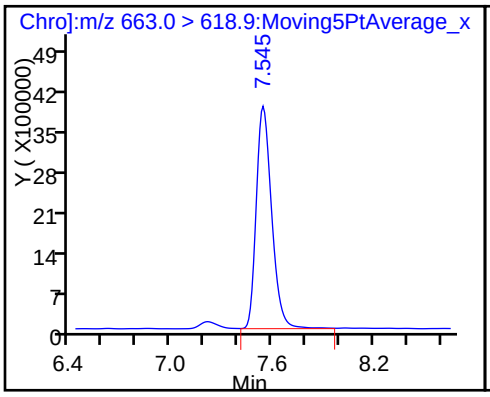
29 Perfluorododecanoic acid



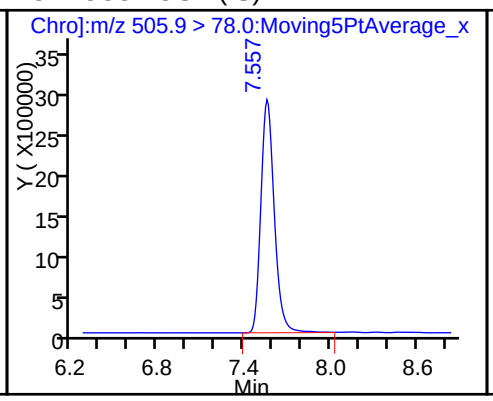
29 Perfluorododecanoic acid



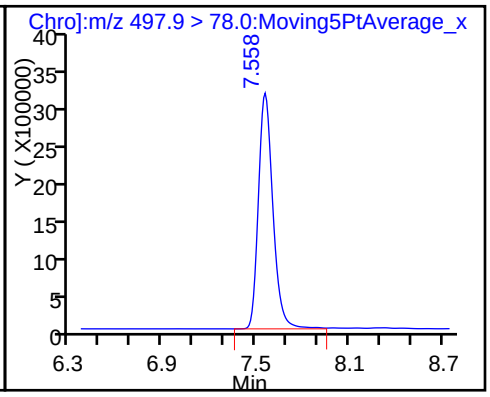
30 Perfluorotridecanoic acid



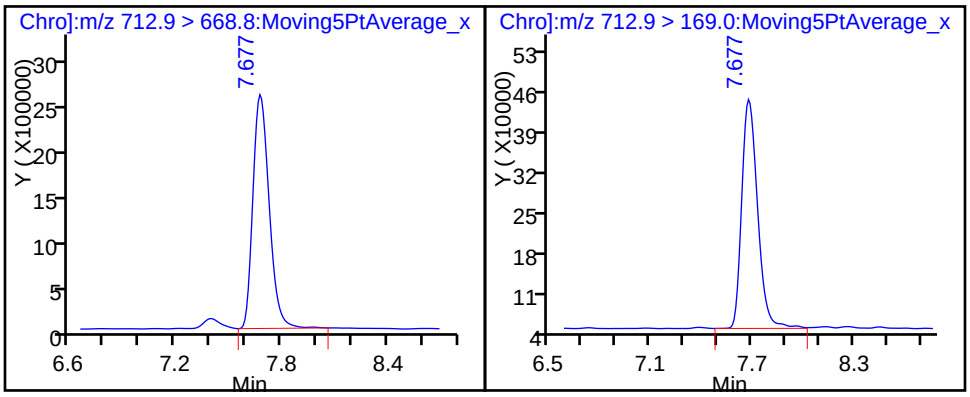
* 31 13C8 FOSA (IS)



32 Perfluorooctane Sulfonamide



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Lab Sample ID: CCV 280-335652/23 Calibration Date: 07/28/2016 21:50

Instrument ID: LC_LCMS5 Calib Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calib End Date: 06/06/2016 16:28

Lab File ID: PC516G28067.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	Lin2		1.090		5.08	5.00	1.6	30.0
Perfluoropentanoic acid (PFPA)	Lin2		1.246		5.29	5.00	5.7	30.0
Perfluorobutane Sulfonate (PFBS)	Lin2		4.781		4.05	4.43	-8.4	30.0
Perfluorobutanesulfonic acid	Lin2		4.781		4.05	4.43	-8.4	30.0
Perfluorohexanoic acid (PFHxA)	Lin2		1.015		5.36	5.00	7.1	30.0
Perfluoroheptanoic acid (PFHpA)	Lin2		0.8499		4.87	5.00	-2.6	30.0
Perfluorohexane Sulfonate (PFHxS)	Lin2		4.131		5.00	4.73	5.9	30.0
Perfluorohexanesulfonic acid	Lin2		4.131		5.00	4.73	5.9	30.0
Perfluoroheptane Sulfonate	Lin2		1.110		4.37	4.76	-8.3	30.0
Perfluoroheptanesulfonic Acid (PFHpS)	Lin2		1.110		4.37	4.76	-8.3	30.0
Perfluorooctanoic acid (PFOA)	Lin2		1.094		5.22	5.00	4.4	30.0
Perfluorooctanesulfonic acid (PFOS)	Lin2		1.124		4.54	4.78	-4.9	30.0
Perfluorononanoic acid (PFNA)	Lin2		1.170		5.19	5.00	3.9	30.0
Perfluorodecanoic acid (PFDA)	Lin2		1.036		5.12	5.00	2.5	30.0
Perfluorodecane sulfonate (PFDS)	Lin2		1.076		4.17	4.83	-13.5	30.0
Perfluorodecane Sulfonic acid	Lin2		1.076		4.17	4.83	-13.5	30.0
Perfluoroundecanoic acid (PFUnA)	Lin2		1.475		5.18	5.00	3.6	30.0
Perfluorododecanoic acid (PFDoA)	Lin2		1.105		5.35	5.00	7.0	30.0
Perfluorotridecanoic Acid (PFTriA)	Lin2		0.9038		4.82	5.00	-3.7	30.0
Perfluorooctane Sulfonamide (FOSA)	Lin2		1.109		5.10	5.00	2.1	30.0
Perfluorotetradecanoic acid (PFTeA)	Lin2		0.6250		5.29	5.00	5.7	30.0
13C8 PFOA	Lin2		0.8892		5.48	5.00	9.5	30.0
13C8 PFOS	Lin2		0.6915		5.39	4.78	12.8	30.0

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28067.d
Lims ID: CCV PFC L5
Client ID:
Sample Type: CCV
Inject. Date: 28-Jul-2016 21:50:31 ALS Bottle#: 0 Worklist Smp#: 23
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: CCV PFC L5, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 29-Jul-2016 10:37:58 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK010

First Level Reviewer: meyera Date: 29-Jul-2016 09:50:12

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.020	4.020	0.0		17884272	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	4.020	4.020	0.0	1.000	9743231	5.08			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.100	5.100	0.0	0.898	9906325	5.29			
4 Perfluorobutane Sulfonate									R
298.9 > 79.9	5.213	5.213	0.0	0.853	4717407	4.05			R
298.9 > 98.9	5.222	5.213	0.009	0.855	1352713		3.49(1.80-3.35)		
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.213	5.213	0.0	0.853	4717407	4.05			
298.9 > 98.9	5.222	5.213	0.009	0.855	1352713		3.49(2.57-2.57)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.676	5.676	0.0		15897210	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.677	5.677	0.0	1.000	8068743	5.36			
313.0 > 118.6	5.677	5.677	0.0	1.000	231487		34.86(34.05-63.23)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.102	6.102	0.0	0.946	10729588	4.87			
363.0 > 168.9	6.102	6.102	0.0	0.946	2961213		3.62(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.111	6.111	0.0		2109417	9.46			
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.111	6.111	0.0	1.000	4352606	5.00			
398.9 > 98.9	6.102	6.111	-0.009	0.998	1415704		3.07(1.85-1.85)		
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.111	6.111	0.0	1.000	4352606	5.00			R
398.9 > 98.9	6.102	6.111	-0.009	0.998	1415704		3.07(1.30-2.41)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.441	6.441	0.0	0.958	4453638	4.37			
449.0 > 98.9	6.441	6.441	0.0	0.958	1281855		3.47(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.441	6.441	0.0	0.958	4453638	4.37			
449.0 > 98.9	6.441	6.441	0.0	0.958	1281855		3.47(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.451	6.451	0.0	1.000	11225176	5.48			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.451	6.451	0.0		25247810	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.452	6.452	0.0	1.000	13812243	5.22			
413.0 > 169.0	6.452	6.452	0.0	1.000	4371712		3.16(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.723	6.723	0.0	1.000	2786450	5.39			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.724	6.724	0.0		8059000	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.724	6.724	0.0	1.000	4523176	4.54			R
498.9 > 98.9	6.724	6.724	0.0	1.000	1728231		2.62(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.744	6.744	0.0		19938674	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.744	6.744	0.0	1.000	11661513	5.19			
463.0 > 218.9	6.734	6.744	-0.010	0.999	1684807		6.92(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	6.988	6.988	0.0		20054878	10.0			
23 Perfluorodecanoic acid									R
513.0 > 468.9	6.988	6.988	0.0	1.000	10385291	5.12			R
513.0 > 219.0	6.988	6.988	0.0	1.000	1050681		9.88(10.49-19.48)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.176	7.176	0.0	1.067	4374643	4.17			
598.9 > 99.0	7.176	7.176	0.0	1.067	1511783		2.89(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.176	7.176	0.0	1.067	4374643	4.17			
598.9 > 99.0	7.176	7.176	0.0	1.067	1511783		2.89(2.84-2.84)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.196	7.196	0.0		13030498	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.196	7.196	0.0	1.000	9612043	5.18			R
563.0 > 268.9	7.196	7.196	0.0	1.000	1276557		7.53(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.384	7.384	0.0		27104703	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.375	7.375	0.0	0.999	14978643	5.35			
613.0 > 168.9	7.375	7.375	0.0	0.999	1804196		8.30(5.96-11.06)		
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.548	7.548	0.0		18230178	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.549	7.549	0.0	1.000	10109359	5.10			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.526	7.526	0.0	1.019	12249106	4.82			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.658	7.658	0.0	1.037	8470589	5.29			
712.9 > 169.0	7.668	7.658	0.010	1.038	1368254		6.19(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Reagents:

PFC-IS_00021	Amount Added:	20.00	Units: uL
PFC-LCS_00078	Amount Added:	10.00	Units: uL
PFC_Surr_00021	Amount Added:	10.00	Units: uL

Report Date: 29-Jul-2016 10:37:59 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28067.d

Injection Date: 28-Jul-2016 21:50:31 Instrument ID: LC_LCMS5

Lims ID: CCV PFC L5

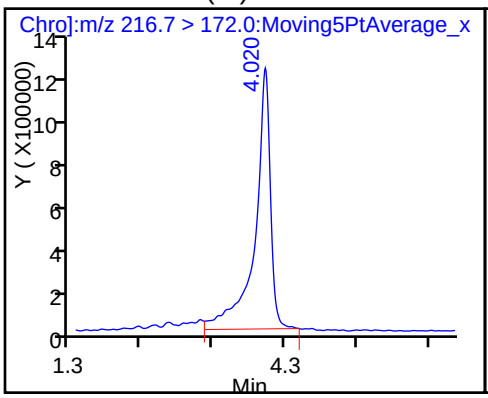
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 23

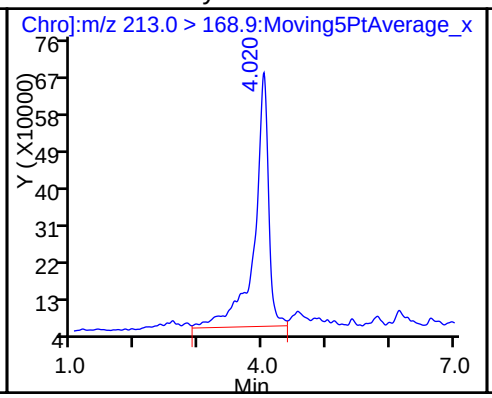
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

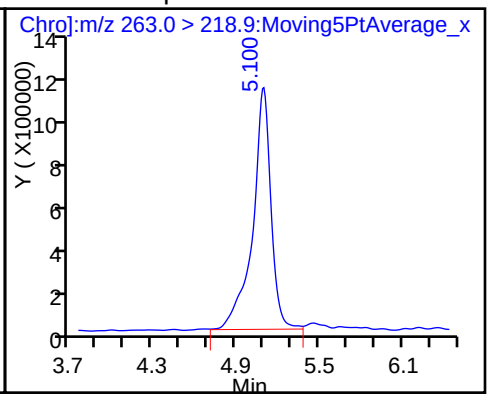
* 1 13C4 PFBA (IS)



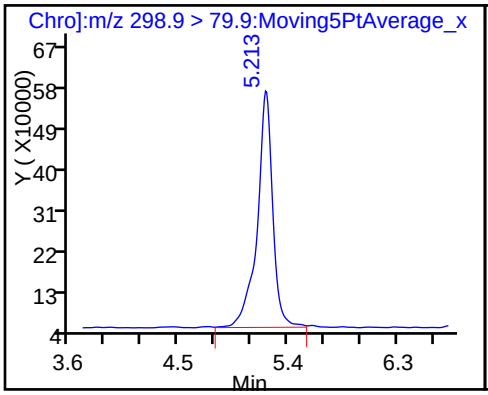
2 Perfluorobutyric acid



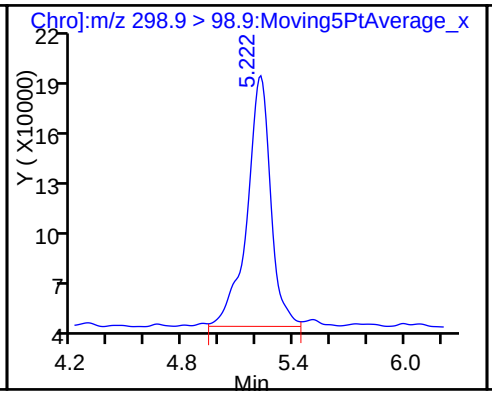
3 Perfluoropentanoic acid



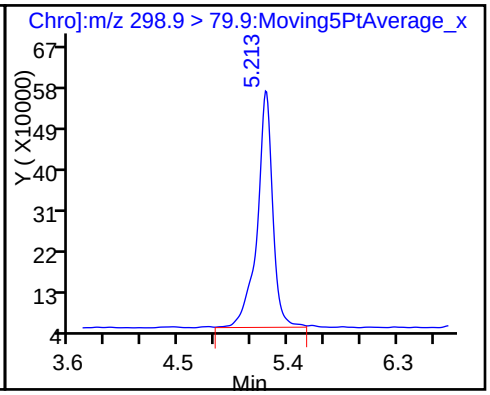
4 Perfluorobutane Sulfonate



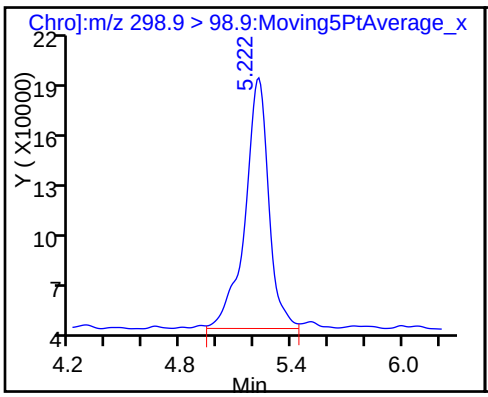
4 Perfluorobutane Sulfonate



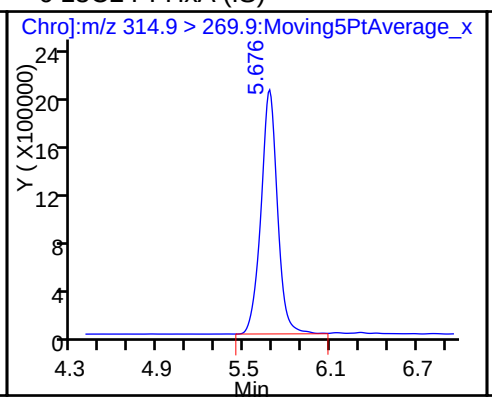
5 Perfluorobutanesulfonic acid



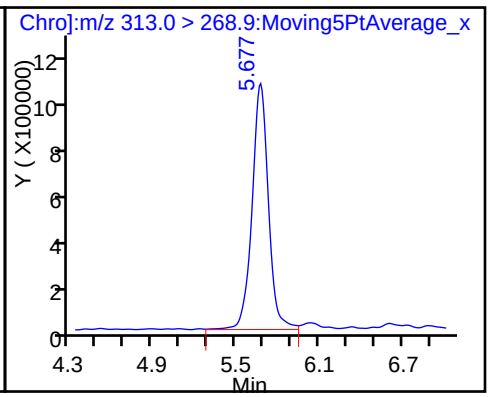
5 Perfluorobutanesulfonic acid



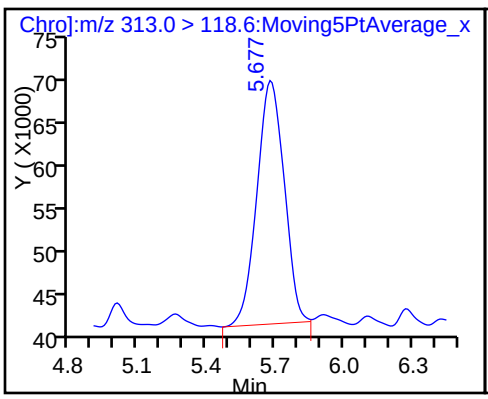
* 6 13C2 PFHxA (IS)



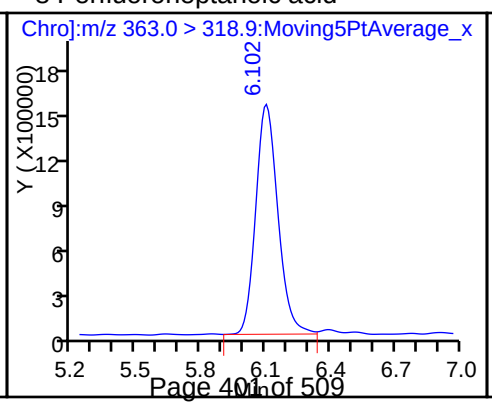
7 Perfluorohexanoic acid



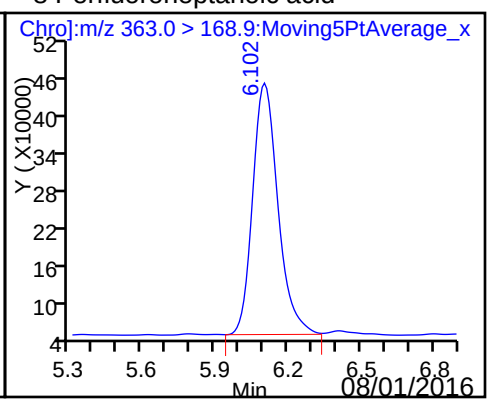
7 Perfluorohexanoic acid



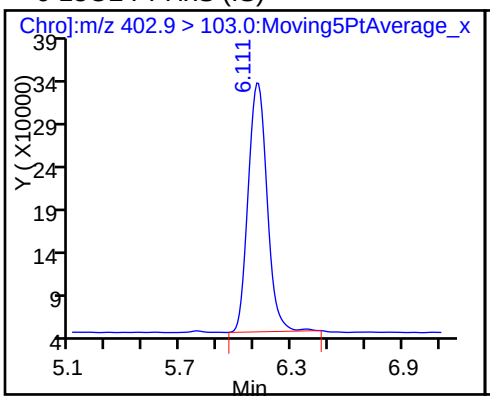
8 Perfluoroheptanoic acid



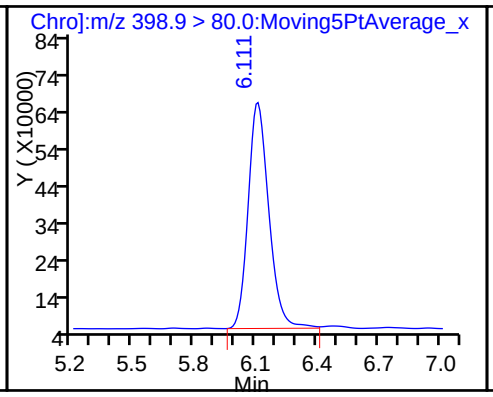
8 Perfluoroheptanoic acid



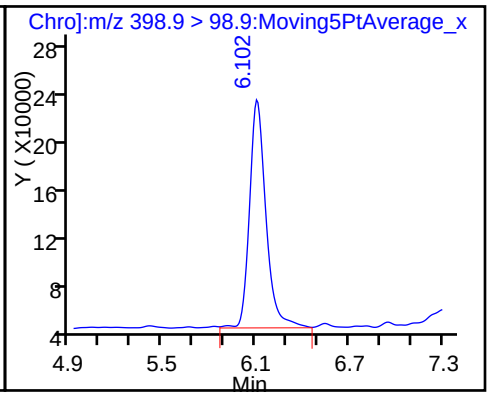
* 9 18O2 PFHxS (IS)



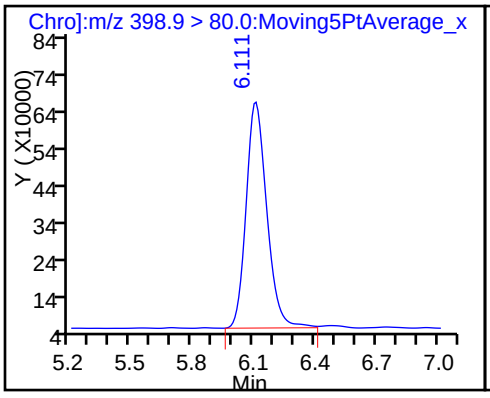
11 Perfluorohexanesulfonic acid



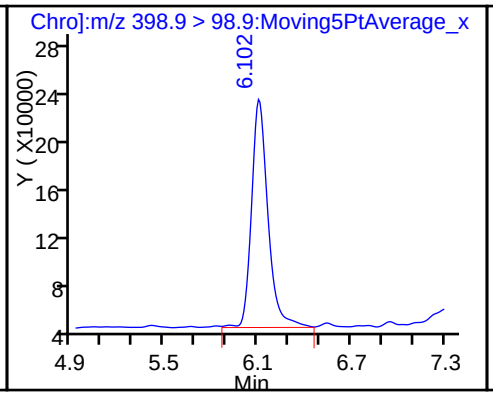
11 Perfluorohexanesulfonic acid



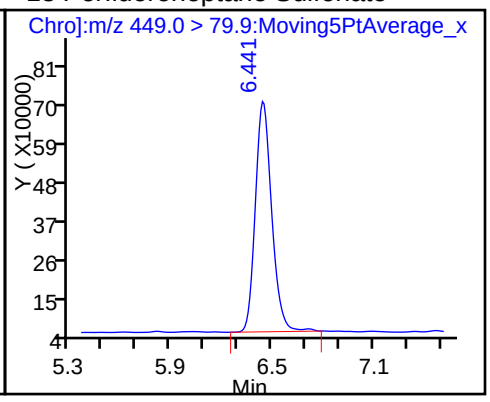
10 Perfluorohexane Sulfonate



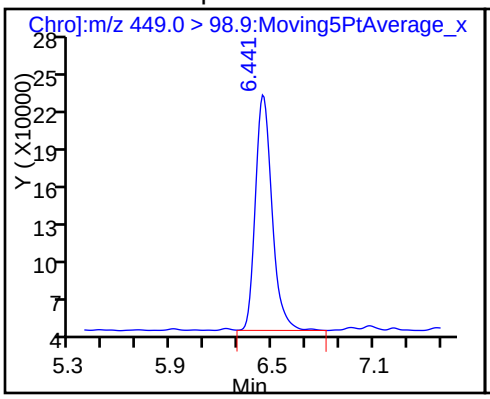
10 Perfluorohexane Sulfonate



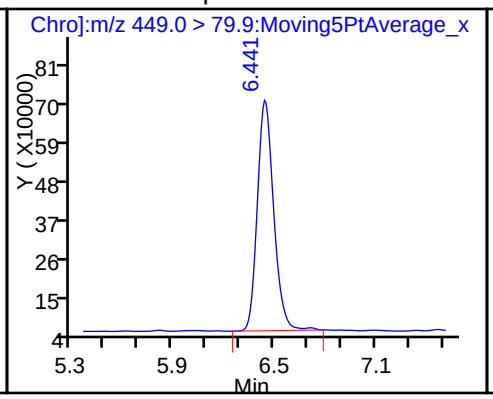
13 Perfluoroheptane Sulfonate



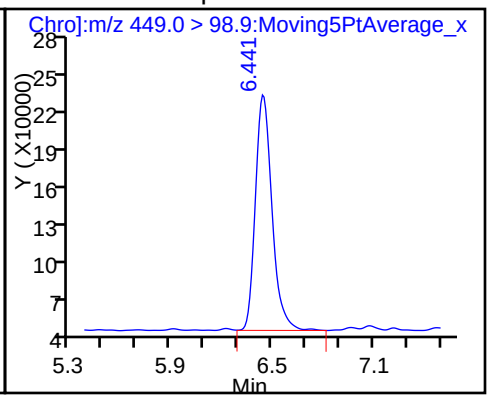
13 Perfluoroheptane Sulfonate



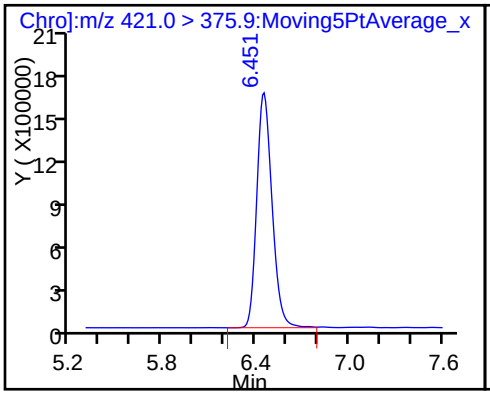
12 Perfluoroheptanesulfonic Acid



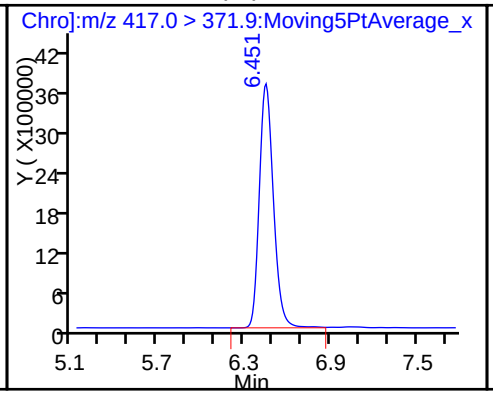
12 Perfluoroheptanesulfonic Acid



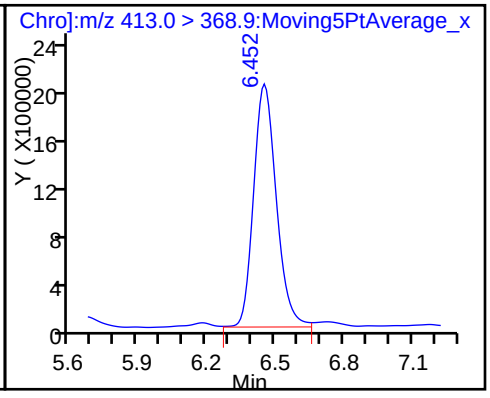
$ 14 13C8 PFOA



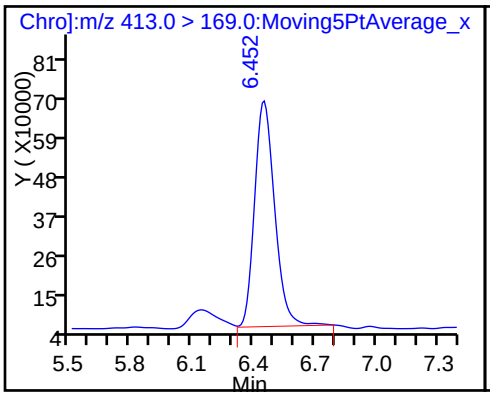
* 15 13C4 PFOA (IS)



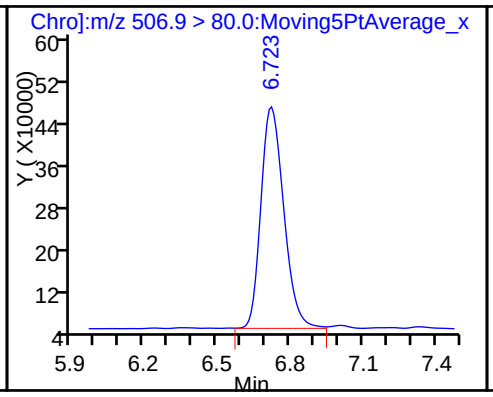
16 Perfluorooctanoic acid



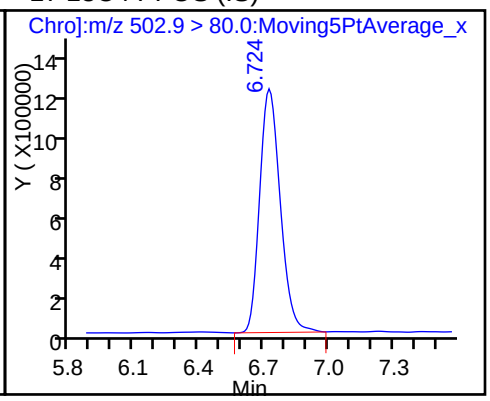
16 Perfluorooctanoic acid



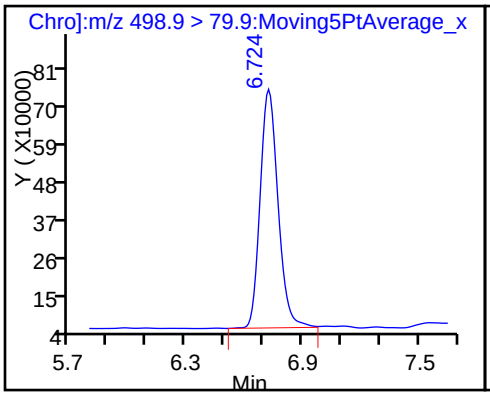
$ 18 13C8 PFOS



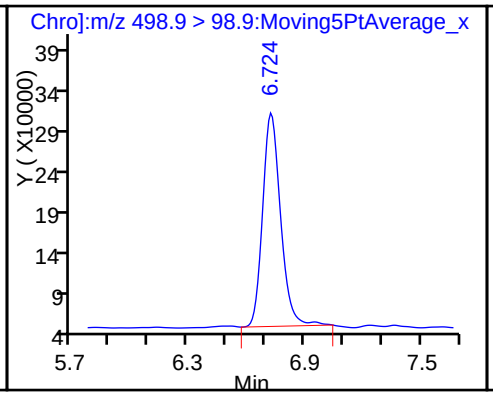
* 17 13C4 PFOS (IS)



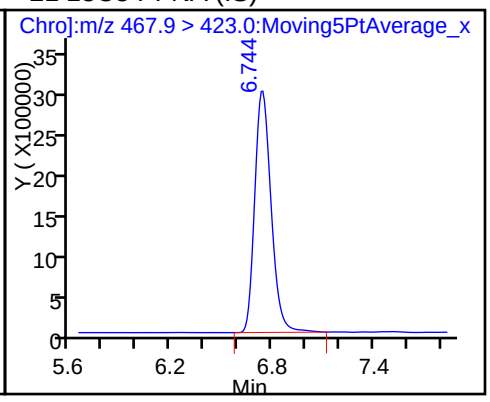
19 Perfluorooctane sulfonic acid



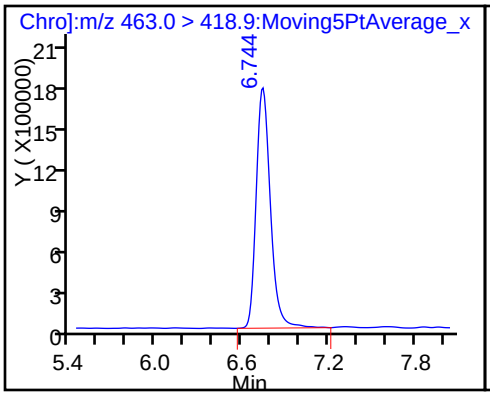
19 Perfluorooctane sulfonic acid



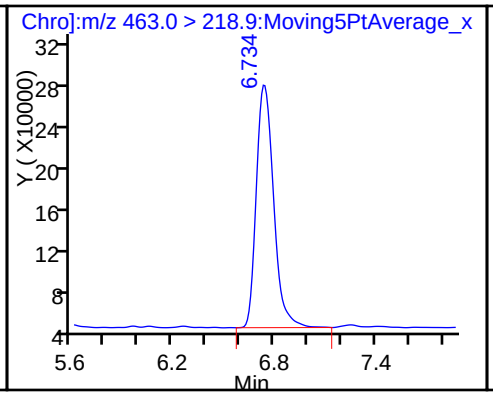
* 21 13C5 PFNA (IS)



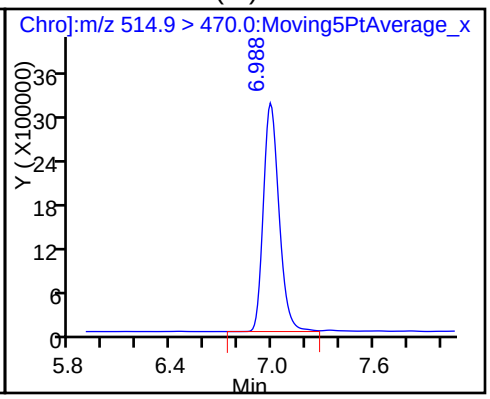
20 Perfluorononanoic acid



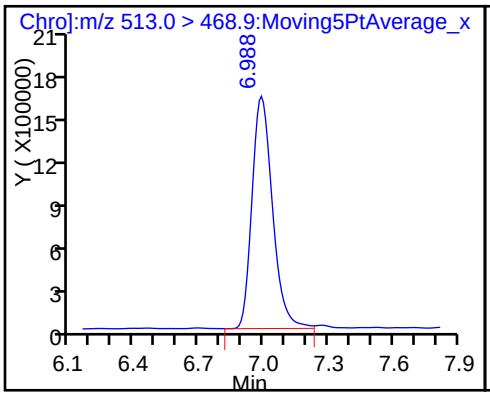
20 Perfluorononanoic acid



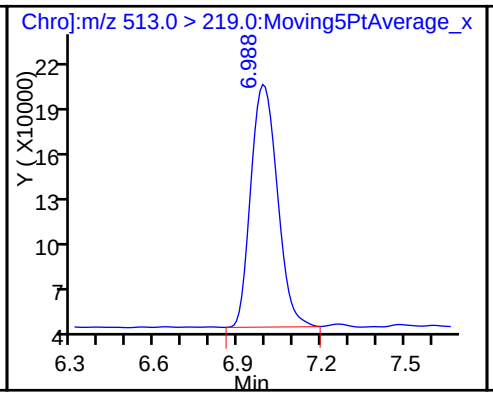
* 22 13C2 PFDA (IS)



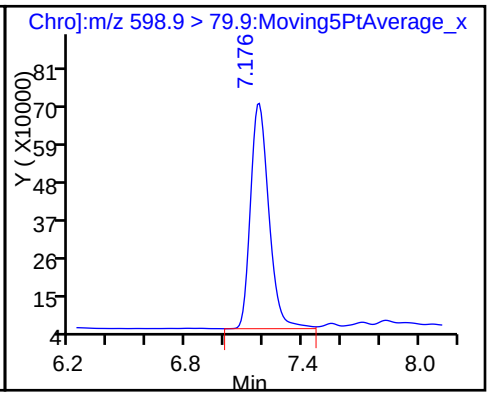
23 Perfluorodecanoic acid



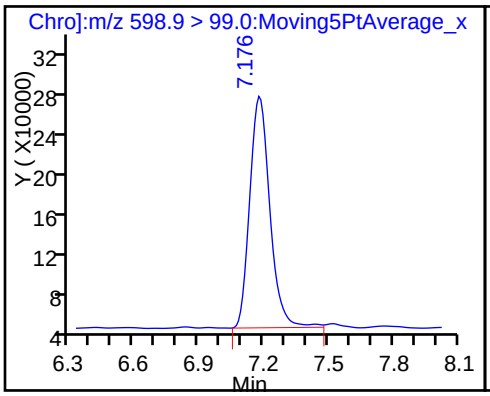
23 Perfluorodecanoic acid



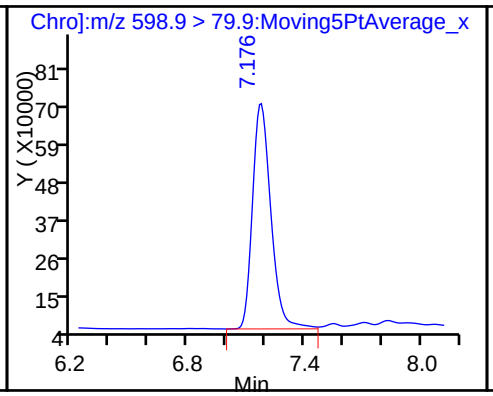
25 Perfluorodecane Sulfonate



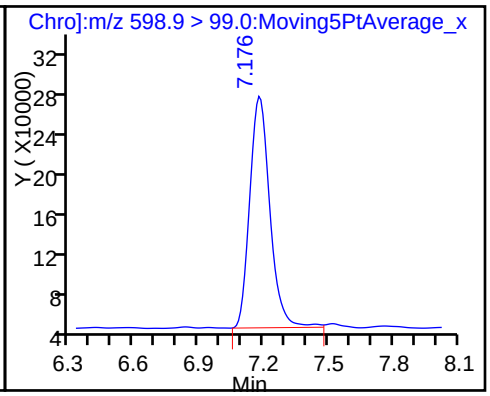
25 Perfluorodecane Sulfonate



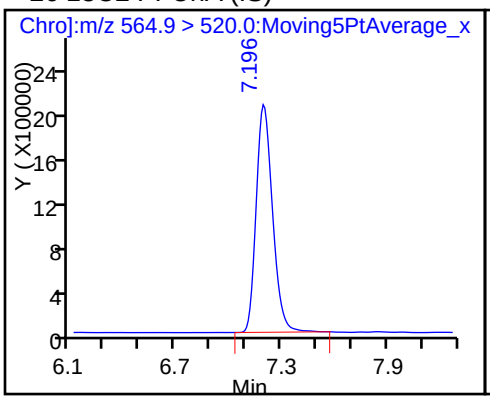
24 Perfluorodecane Sulfonic acid



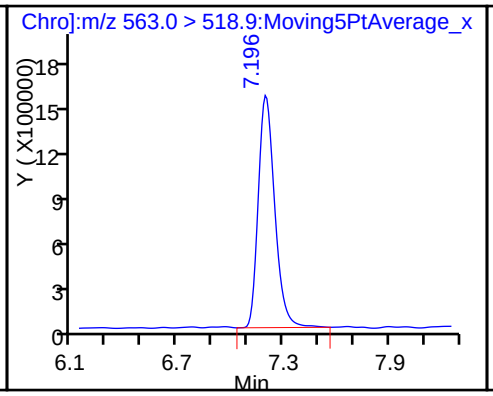
24 Perfluorodecane Sulfonic acid



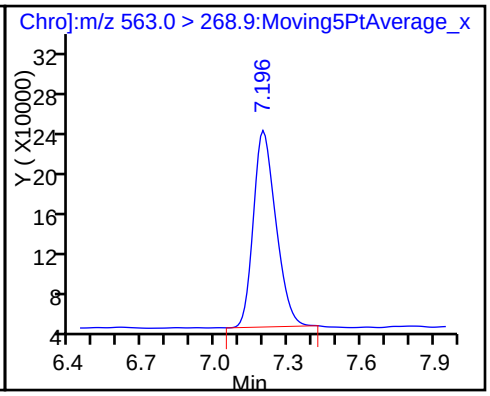
* 26 13C2 PFUnA (IS)



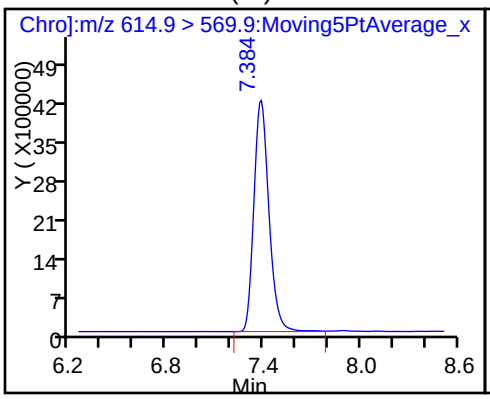
27 Perfluoroundecanoic acid



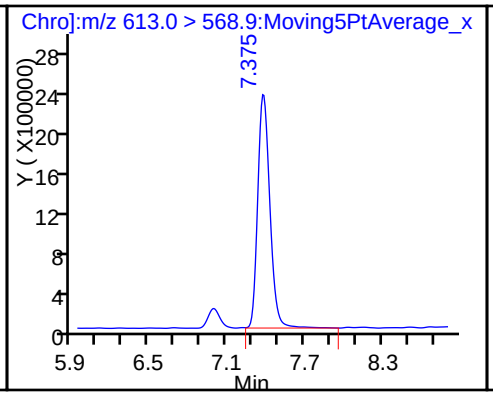
27 Perfluoroundecanoic acid



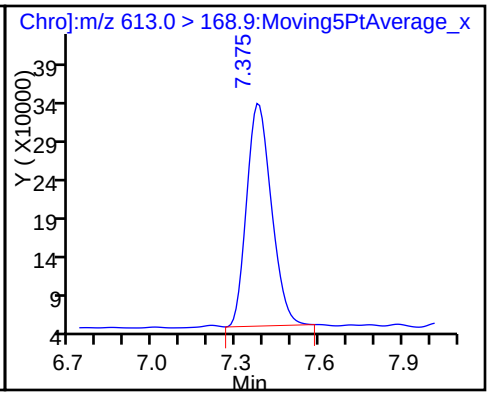
* 28 13C2 PFDoA (IS)



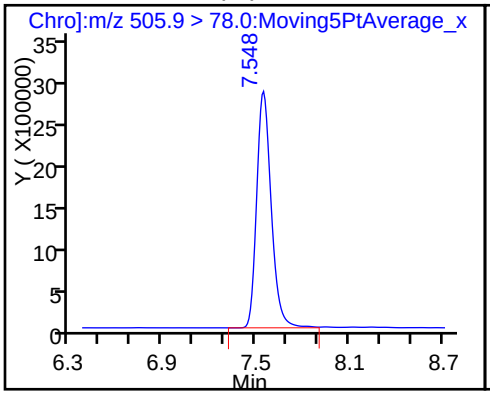
29 Perfluorododecanoic acid



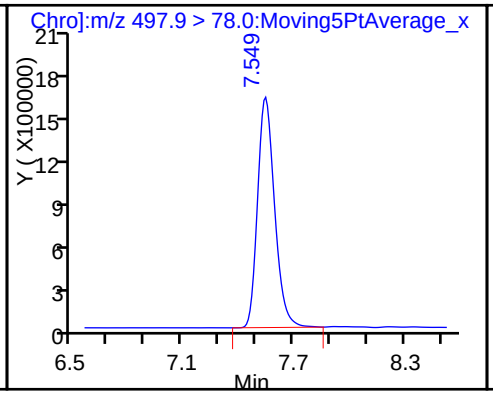
29 Perfluorododecanoic acid



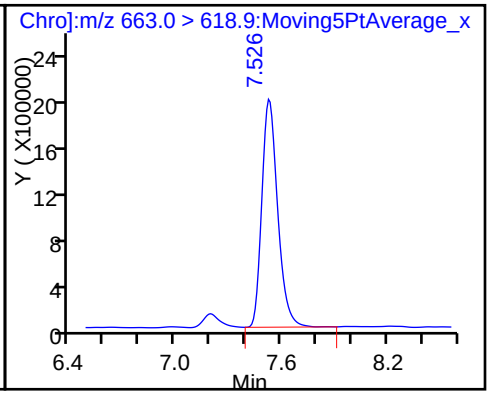
* 31 13C8 FOSA (IS)



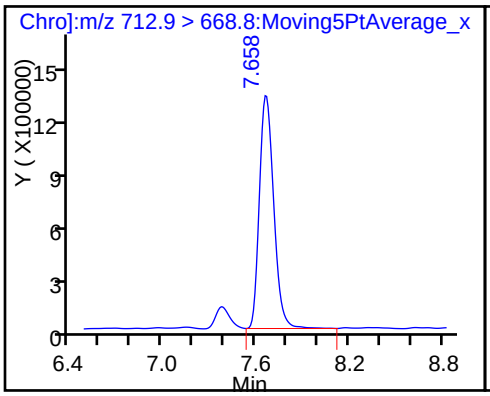
32 Perfluorooctane Sulfonamide



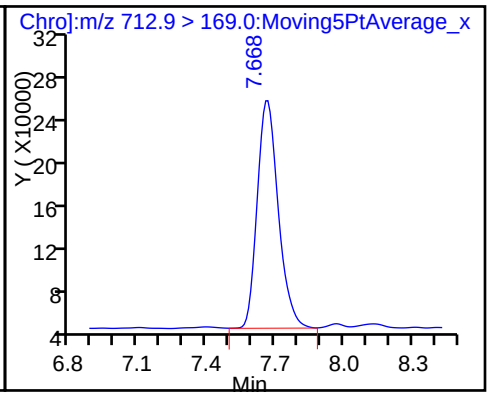
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Lab Sample ID: CCV 280-335652/30 Calibration Date: 07/28/2016 23:16

Instrument ID: LC_LCMS5 Calib Start Date: 06/06/2016 14:49

GC Column: Gemini-NX ID: Calib End Date: 06/06/2016 16:28

Lab File ID: PC516G28074.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	Lin2		0.9002		8.39	10.0	-16.1	30.0
Perfluoropentanoic acid (PFPA)	Lin2		1.173		9.97	10.0	-0.3	30.0
Perfluorobutane Sulfonate (PFBS)	Lin2		4.720		8.00	8.85	-9.6	30.0
Perfluorobutanesulfonic acid	Lin2		4.720		8.00	8.85	-9.6	30.0
Perfluorohexanoic acid (PFHxA)	Lin2		0.9361		9.90	10.0	-1.0	30.0
Perfluoroheptanoic acid (PFHpA)	Lin2		0.8574		9.86	10.0	-1.4	30.0
Perfluorohexane Sulfonate (PFHxS)	Lin2		4.097		10.0	9.45	5.9	30.0
Perfluorohexanesulfonic acid	Lin2		4.097		10.0	9.45	5.9	30.0
Perfluoroheptane Sulfonate	Lin2		1.066		8.38	9.52	-12.0	30.0
Perfluoroheptanesulfonic Acid (PFHpS)	Lin2		1.066		8.38	9.52	-12.0	30.0
Perfluorooctanoic acid (PFOA)	Lin2		1.083		10.4	10.0	4.0	30.0
Perfluorooctanesulfonic acid (PFOS)	Lin2		1.059		8.62	9.55	-9.7	30.0
Perfluorononanoic acid (PFNA)	Lin2		1.122		10.0	10.0	0.0	30.0
Perfluorodecanoic acid (PFDA)	Lin2		1.030		10.2	10.0	2.2	30.0
Perfluorodecane sulfonate (PFDS)	Lin2		1.104		8.61	9.65	-10.8	30.0
Perfluorodecane Sulfonic acid	Lin2		1.104		8.61	9.65	-10.8	30.0
Perfluoroundecanoic acid (PFUnA)	Lin2		1.442		10.2	10.0	1.8	30.0
Perfluorododecanoic acid (PFDoA)	Lin2		0.9683		9.42	10.0	-5.8	30.0
Perfluorotridecanoic Acid (PFTriA)	Lin2		0.8188		8.79	10.0	-12.1	30.0
Perfluorooctane Sulfonamide (FOSA)	Lin2		1.118		10.3	10.0	2.9	30.0
Perfluorotetradecanoic acid (PFTeA)	Lin2		0.6053		10.2	10.0	2.4	30.0
13C8 PFOA	Lin2		0.7825		9.68	10.0	-3.2	30.0
13C8 PFOS	Lin2		0.5596		8.75	9.56	-8.5	30.0

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28074.d
Lims ID: CCV PFC L6
Client ID:
Sample Type: CCV
Inject. Date: 28-Jul-2016 23:16:46 ALS Bottle#: 0 Worklist Smp#: 30
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: CCV PFC L6, Sample
Operator ID: ACM Instrument ID: LC_LCMS5
Sublist: chrom-8321_PFC*sub14

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 29-Jul-2016 10:38:24 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK010

First Level Reviewer: meyera Date: 29-Jul-2016 09:55:22

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	3.982	3.982	0.0		18010052	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	3.982	3.982	0.0	1.000	16211781	8.39			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.090	5.090	0.0	0.900	19451463	9.97			
4 Perfluorobutane Sulfonate									R
298.9 > 79.9	5.203	5.203	0.0	0.854	9625452	8.00			R
298.9 > 98.9	5.203	5.203	0.0	0.854	2758849		3.49(1.80-3.35)		
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.203	5.203	0.0	0.854	9625452	8.00			
298.9 > 98.9	5.203	5.203	0.0	0.854	2758849		3.49(2.57-2.57)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.657	5.657	0.0		16584263	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.658	5.658	0.0	1.000	15524335	9.90			
313.0 > 118.6	5.658	5.658	0.0	1.000	441990		35.12(34.05-63.23)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.083	6.083	0.0	0.946	21924076	9.86			
363.0 > 168.9	6.083	6.083	0.0	0.946	5531190		3.96(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.092	6.092	0.0		2179810	9.46			
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.092	6.092	0.0	1.000	8922120	10.0			
398.9 > 98.9	6.092	6.092	0.0	1.000	2785808		3.20(1.85-1.85)		
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.092	6.092	0.0	1.000	8922120	10.0			R
398.9 > 98.9	6.092	6.092	0.0	1.000	2785808		3.20(1.30-2.41)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.422	6.422	0.0	0.956	8982934	8.38			
449.0 > 98.9	6.432	6.422	0.010	0.958	2709980		3.31(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.422	6.422	0.0	0.956	8982934	8.38			
449.0 > 98.9	6.432	6.422	0.010	0.958	2709980		3.31(0.00-0.00)		
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.432	6.432	0.0		25571146	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.433	6.433	0.0	1.000	27687892	10.4			
413.0 > 169.0	6.433	6.433	0.0	1.000	9067146		3.05(2.86-5.31)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.432	6.432	0.0	1.000	20010237	9.68			
$ 18 13C8 PFOS									
506.9 > 80.0	6.714	6.714	0.0	1.000	4734386	8.75			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.714	6.714	0.0		8460205	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.715	6.715	0.0	1.000	8946869	8.62			R
498.9 > 98.9	6.715	6.715	0.0	1.000	3326037		2.69(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.725	6.725	0.0		20454667	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.725	6.725	0.0	1.000	22948100	10.0			
463.0 > 218.9	6.725	6.725	0.0	1.000	3260457		7.04(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	6.978	6.978	0.0		21383196	10.0			
23 Perfluorodecanoic acid									
513.0 > 468.9	6.979	6.979	0.0	1.000	22021364	10.2			
513.0 > 219.0	6.988	6.979	0.009	1.001	1916958		11.49(10.49-19.48)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.167	7.167	0.0	1.067	9426486	8.61			
598.9 > 99.0	7.176	7.167	0.009	1.069	2911594		3.24(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.167	7.167	0.0	1.067	9426486	8.61			
598.9 > 99.0	7.176	7.167	0.009	1.069	2911594		3.24(2.84-2.84)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.196	7.196	0.0		13322723	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.196	7.196	0.0	1.000	19217319	10.2			R
563.0 > 268.9	7.196	7.196	0.0	1.000	2485634		7.73(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.375	7.375	0.0		29756332	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.375	7.375	0.0	1.000	28811946	9.42			
613.0 > 168.9	7.375	7.375	0.0	1.000	3943221		7.31(5.96-11.06)		
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.535	7.535	0.0	1.022	24363037	8.79			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.557	7.557	0.0		18372053	10.0			
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.558	7.558	0.0	1.000	20530817	10.3			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.668	7.668	0.0	1.040	18012387	10.2			
712.9 > 169.0	7.668	7.668	0.0	1.040	2622706		6.87(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Reagents:

PFC-IS_00021	Amount Added:	20.00	Units: uL
PFC-LCS_00078	Amount Added:	20.00	Units: uL
PFC_Surr_00021	Amount Added:	20.00	Units: uL

Report Date: 29-Jul-2016 10:38:25 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28074.d

Injection Date: 28-Jul-2016 23:16:46 Instrument ID: LC_LCMS5

Lims ID: CCV PFC L6

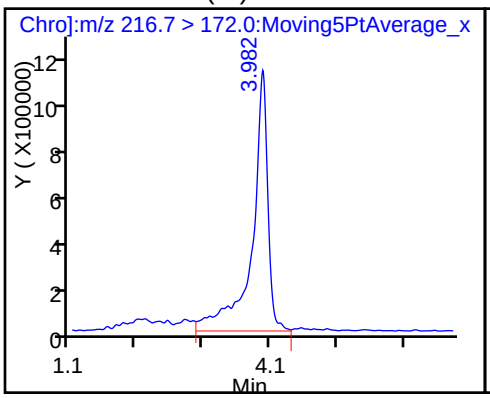
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 30

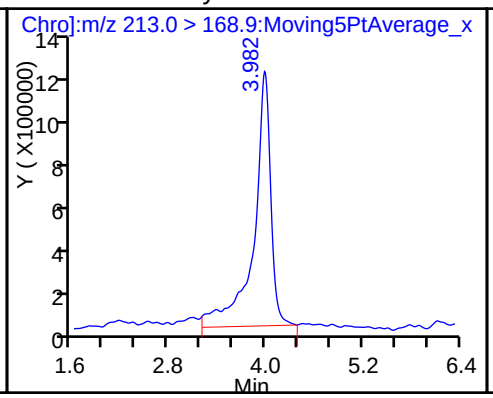
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

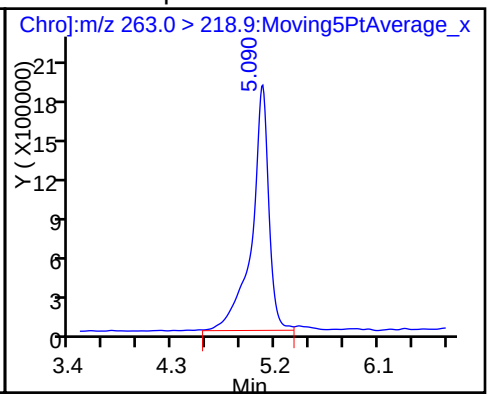
* 1 13C4 PFBA (IS)



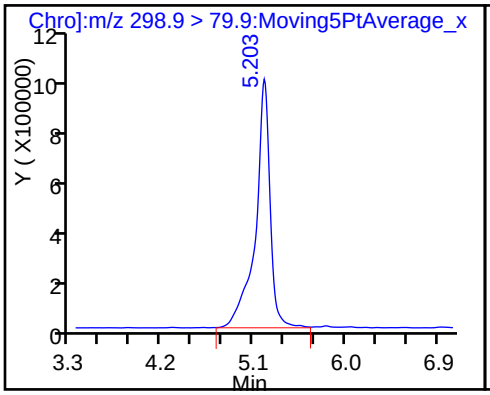
2 Perfluorobutyric acid



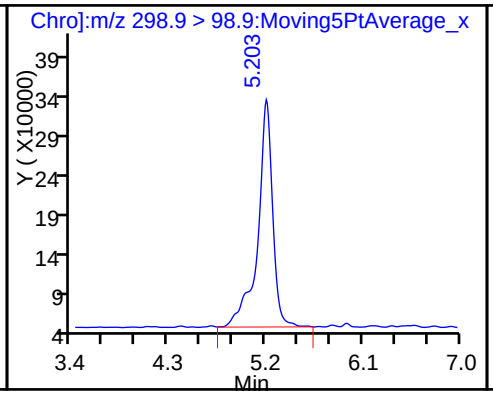
3 Perfluoropentanoic acid



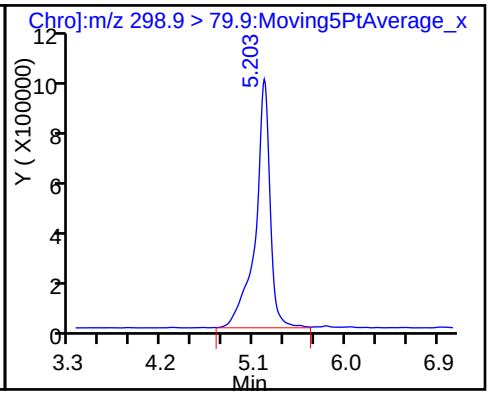
4 Perfluorobutane Sulfonate



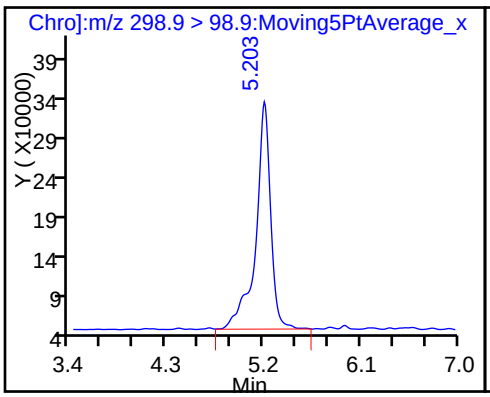
4 Perfluorobutane Sulfonate



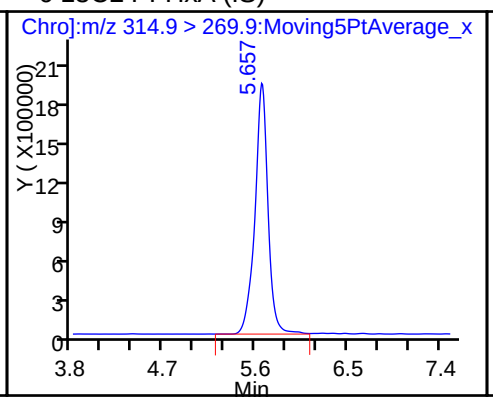
5 Perfluorobutanesulfonic acid



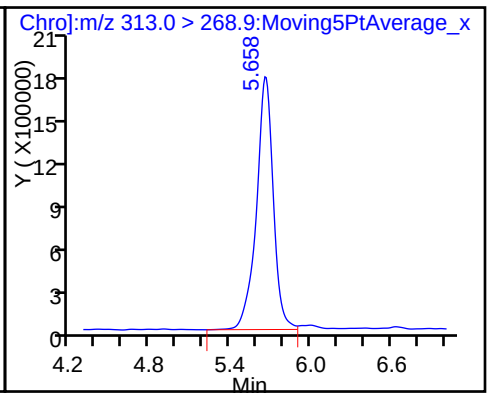
5 Perfluorobutanesulfonic acid



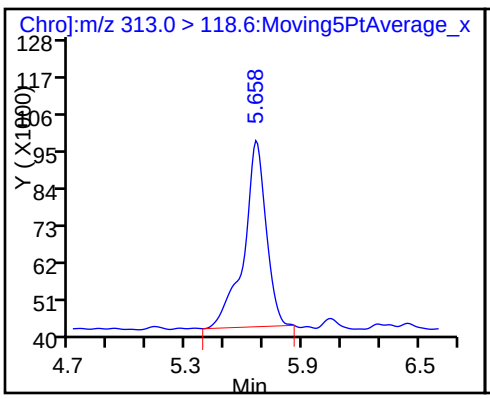
* 6 13C2 PFHxA (IS)



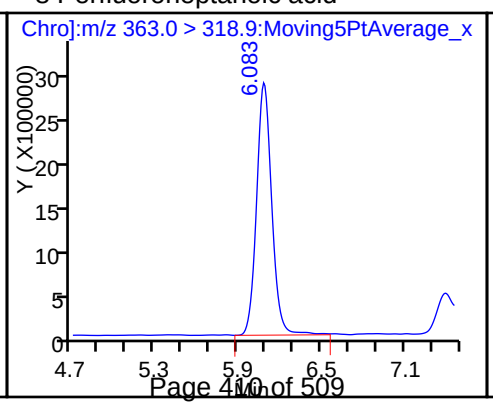
7 Perfluorohexanoic acid



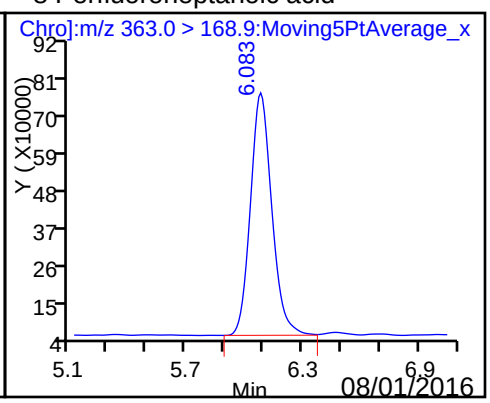
7 Perfluorohexanoic acid



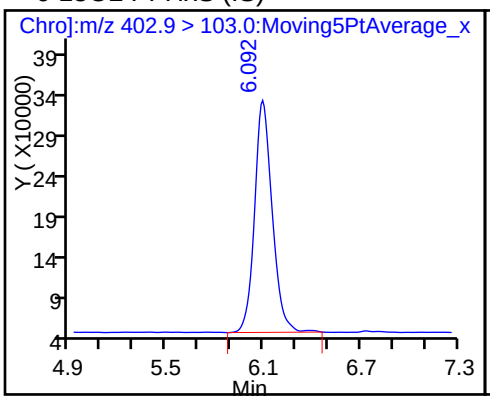
8 Perfluoroheptanoic acid



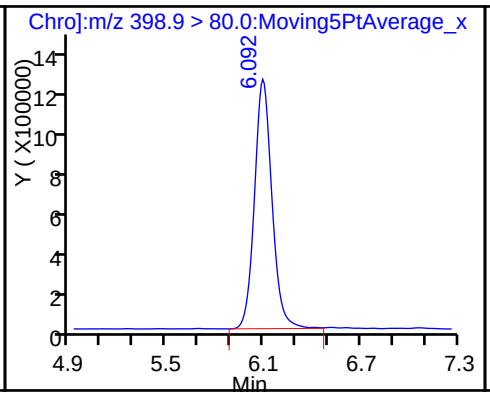
8 Perfluoroheptanoic acid



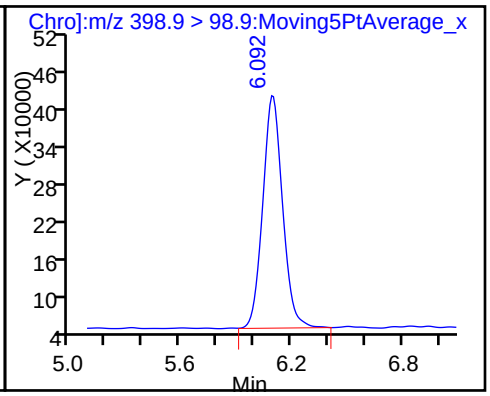
* 9 18O2 PFHxS (IS)



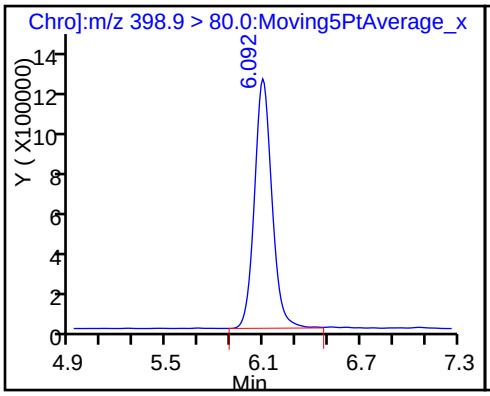
11 Perfluorohexanesulfonic acid



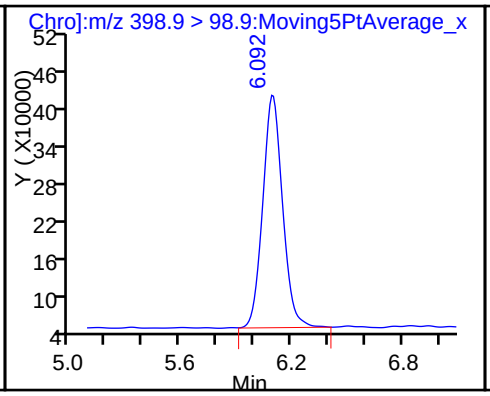
11 Perfluorohexanesulfonic acid



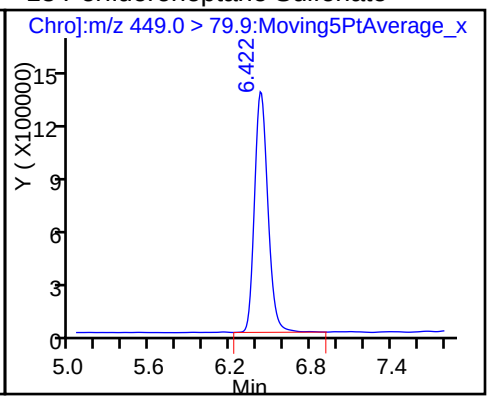
10 Perfluorohexane Sulfonate



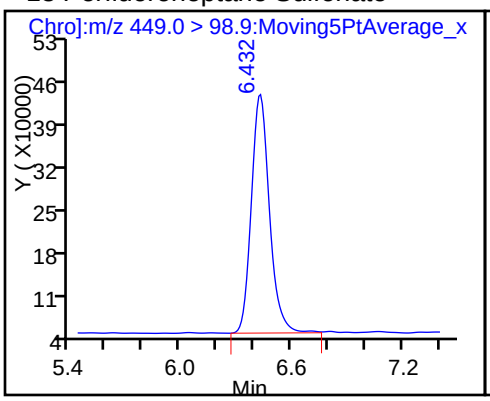
10 Perfluorohexane Sulfonate



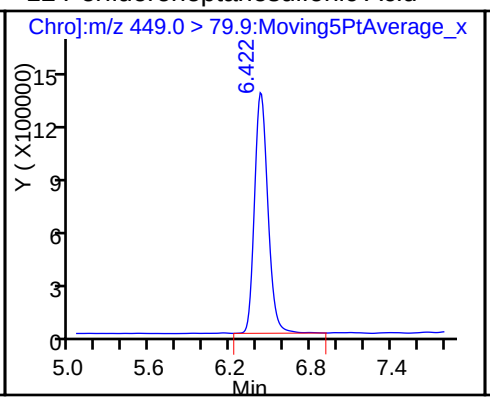
13 Perfluoroheptane Sulfonate



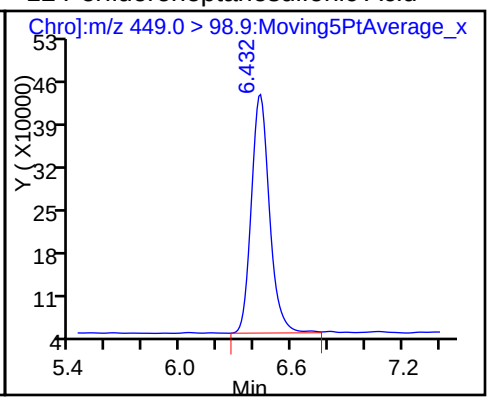
13 Perfluoroheptane Sulfonate



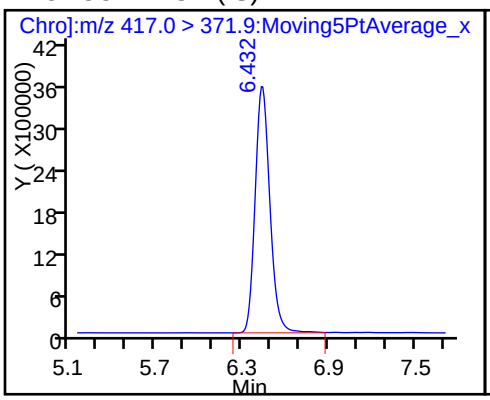
12 Perfluoroheptanesulfonic Acid



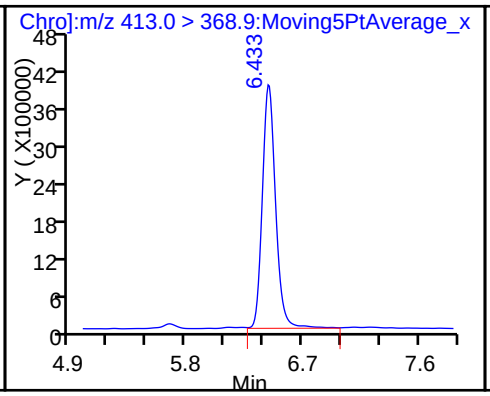
12 Perfluoroheptanesulfonic Acid



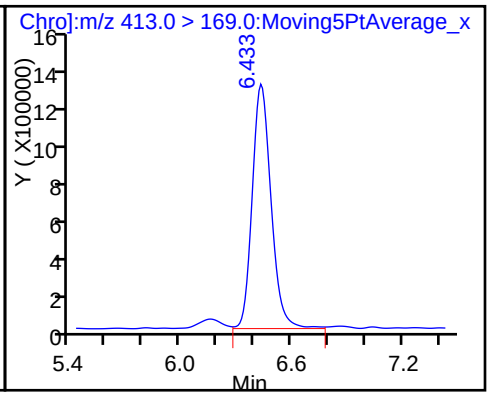
* 15 13C4 PFOA (IS)



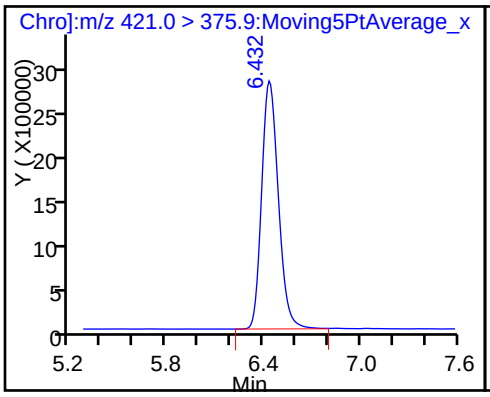
16 Perfluorooctanoic acid



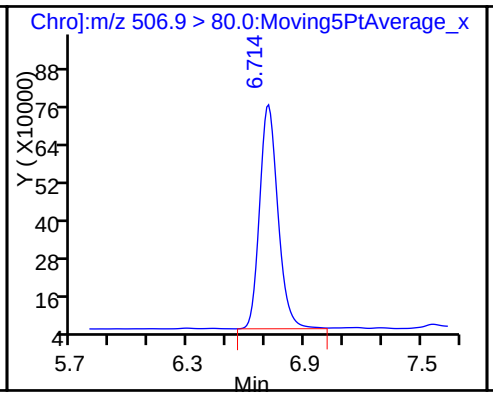
16 Perfluorooctanoic acid



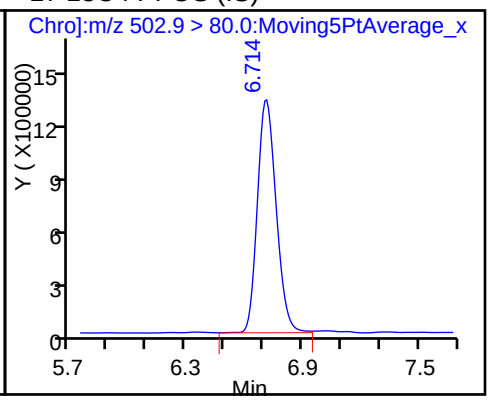
$ 14 13C8 PFOA



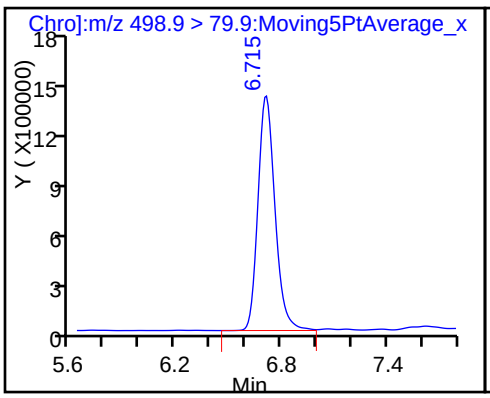
$ 18 13C8 PFOS



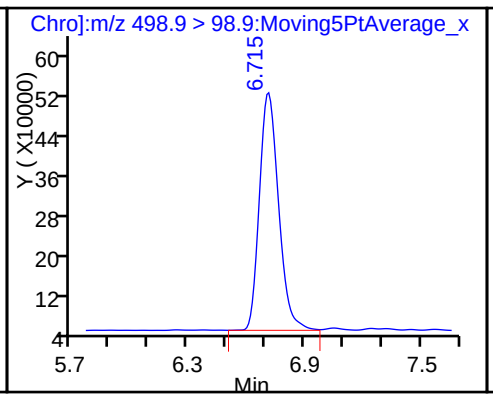
* 17 13C4 PFOS (IS)



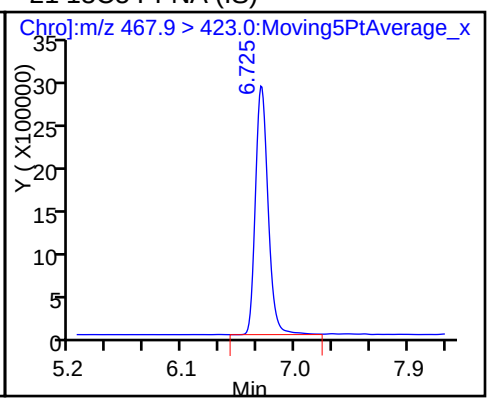
19 Perfluorooctane sulfonic acid



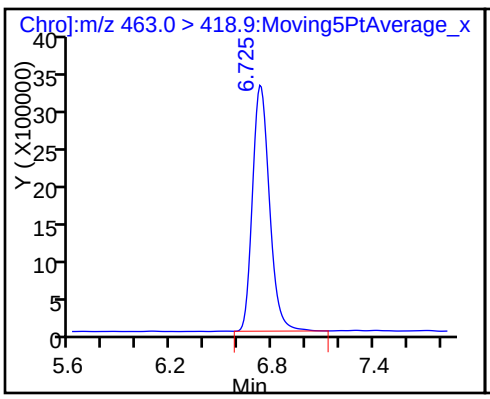
19 Perfluorooctane sulfonic acid



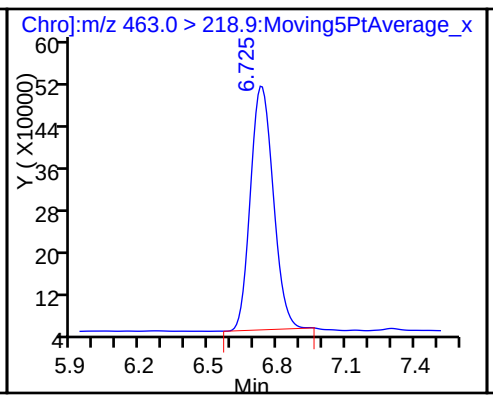
* 21 13C5 PFNA (IS)



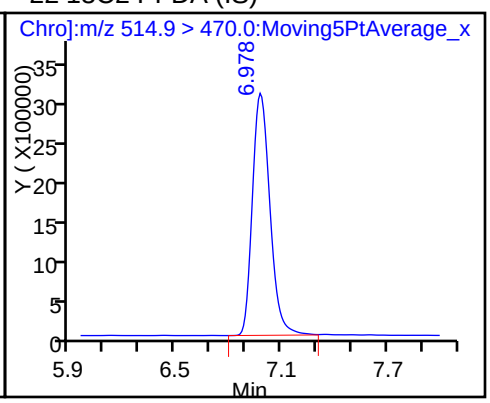
20 Perfluorononanoic acid



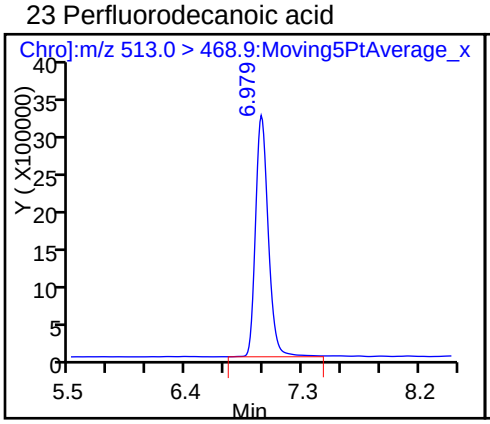
20 Perfluorononanoic acid



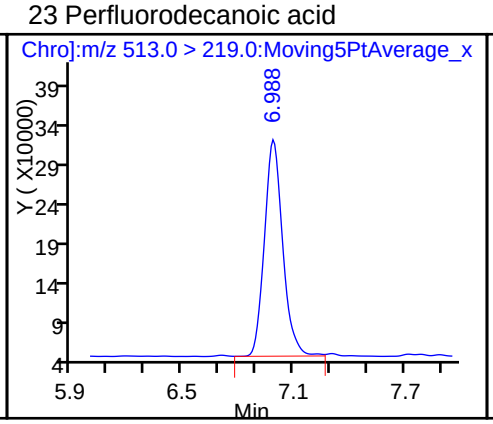
* 22 13C2 PFDA (IS)



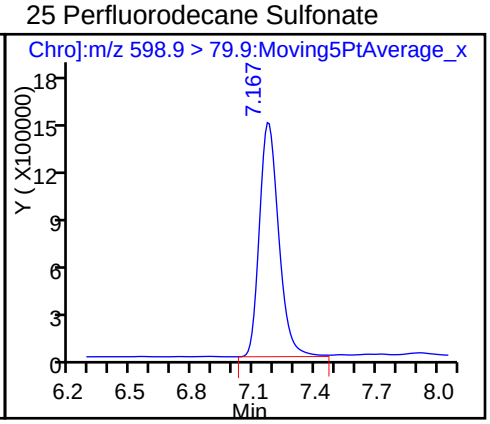
23 Perfluorodecanoic acid



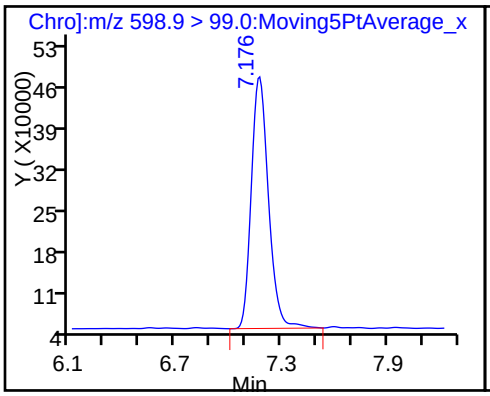
23 Perfluorodecanoic acid



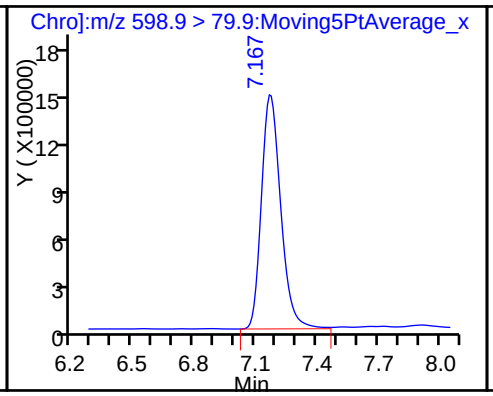
25 Perfluorodecane Sulfonate



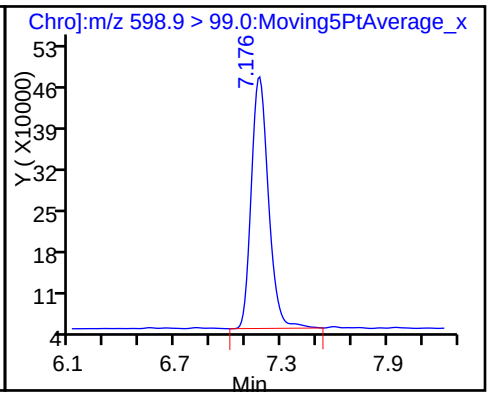
25 Perfluorodecane Sulfonate



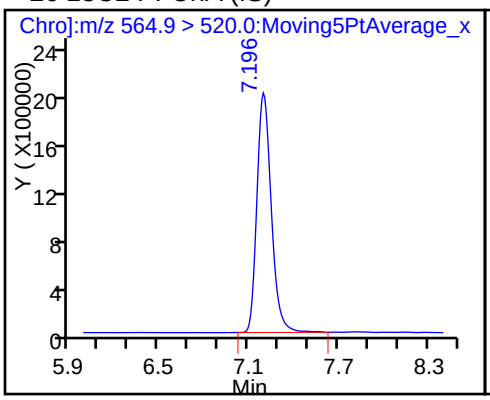
24 Perfluorodecane Sulfonic acid



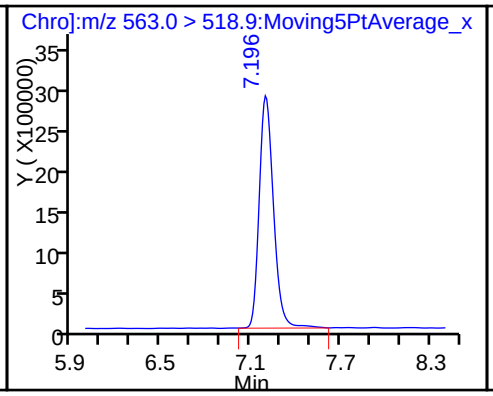
24 Perfluorodecane Sulfonic acid



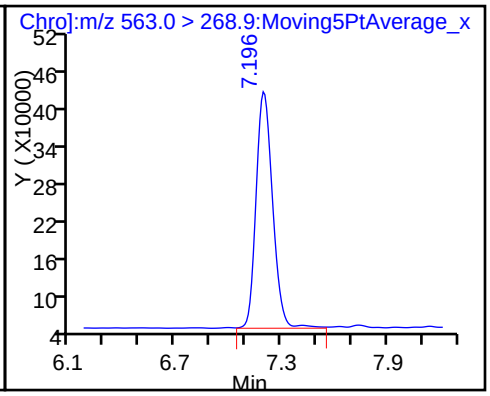
* 26 13C2 PFUnA (IS)



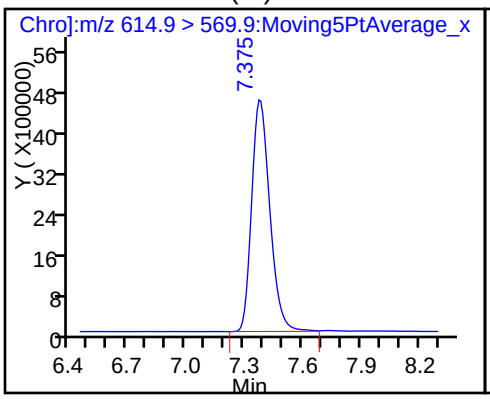
27 Perfluoroundecanoic acid



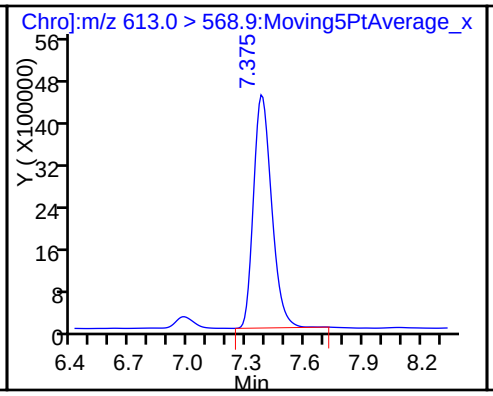
27 Perfluoroundecanoic acid



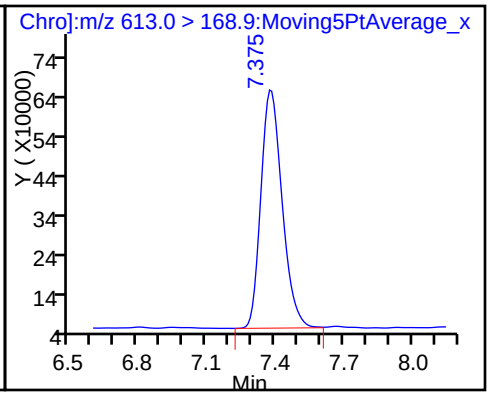
* 28 13C2 PFDoA (IS)



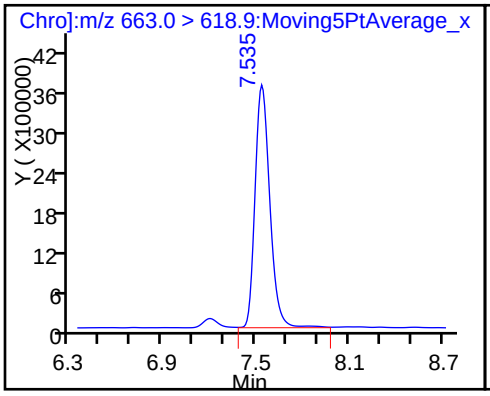
29 Perfluorododecanoic acid



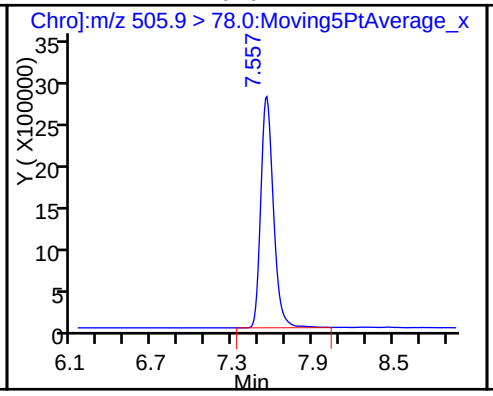
29 Perfluorododecanoic acid



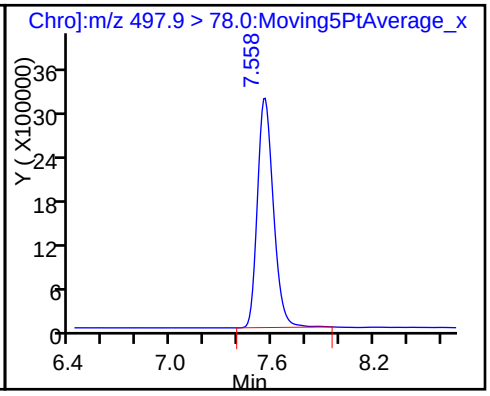
30 Perfluorotridecanoic acid



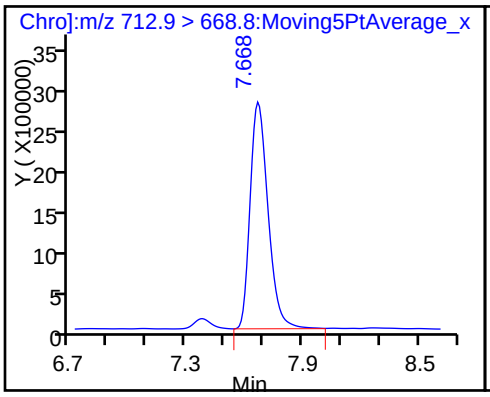
* 31 13C8 FOSA (IS)



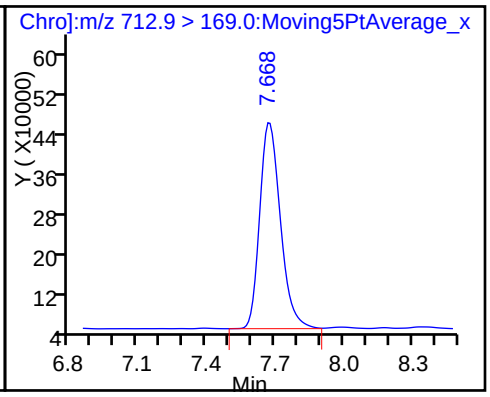
32 Perfluorooctane Sulfonamide



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 280-333869/1-A

Matrix: Water | Lab File ID: PC516G18043.d

Analysis Method: DV-LC-0012 | Date Collected:

Extraction Method: 3535 | Date Extracted: 07/16/2016 07:25

Sample wt/vol: 250(mL) | Date Analyzed: 07/18/2016 20:29

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 334166 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.0082	U	0.020	0.0082
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.013	U	0.030	0.013
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.0070	U	0.030	0.0070
375-95-1	Perfluorononanoic acid (PFNA)	0.017	U	0.040	0.017
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.013	U	0.030	0.013
335-67-1	Perfluorooctanoic acid (PFOA)	0.0098	U	0.020	0.0098

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	103		60-155
STL01054	13C8 PFOS	98		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18043.d
Lims ID: MB 280-333869/1-A
Client ID:
Sample Type: MB
Inject. Date: 18-Jul-2016 20:29:31 ALS Bottle#: 0 Worklist Smp#: 38
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: MB 280-333869/1-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 19-Jul-2016 15:53:00 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK035

First Level Reviewer: fiedlerh Date: 19-Jul-2016 13:31:18

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.143	4.333	-0.190		33714047	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9		4.333				ND			
3 Perfluoropentanoic acid									
263.0 > 218.9		5.346				ND			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.459				ND			
298.9 > 98.9		5.459							
5 Perfluorobutanesulfonic acid									
298.9 > 79.9		5.459				ND			
298.9 > 98.9		5.459							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.818	5.932	-0.114		21413746	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.828	5.932	-0.104	1.002	189637	0.0720			
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.358				ND			
363.0 > 168.9		6.358							
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.253	6.367	-0.114		2577733	9.46			
11 Perfluorohexanesulfonic acid									
398.9 > 80.0		6.367				ND			
398.9 > 98.9		6.367							
10 Perfluorohexane Sulfonate									
398.9 > 80.0		6.367				ND			
398.9 > 98.9		6.367							
13 Perfluoroheptane Sulfonate									
449.0 > 79.9		6.688				ND			
449.0 > 98.9		6.688							

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9		6.688				ND			
449.0 > 98.9		6.688							
$ 14 13C8 PFOA									
421.0 > 375.9	6.593	6.697	-0.104	1.000	26664328	10.3			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.593	6.698	-0.105		32148880	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9		6.698				ND			
413.0 > 169.0		6.698							
$ 18 13C8 PFOS									
506.9 > 80.0	6.856	6.970	-0.114	1.000	5381995	9.39			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.856	6.970	-0.114		8959720	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9		6.970				ND			
498.9 > 98.9		6.970							
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.876	6.990	-0.114		25595939	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9		6.990				ND			
463.0 > 218.9		6.990							
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.121	7.225	-0.104		26478181	10.0			
23 Perfluorodecanoic acid									
513.0 > 468.9		7.225				ND			
513.0 > 219.0		7.225							
25 Perfluorodecane Sulfonate									
598.9 > 79.9		7.404				ND			
598.9 > 99.0		7.404							
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9		7.404				ND			
598.9 > 99.0		7.404							
27 Perfluoroundecanoic acid									
563.0 > 518.9		7.433				ND			
563.0 > 268.9		7.433							
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.328	7.432	-0.104		15945571	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.507	7.602	-0.095		26948836	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9		7.602				ND			
613.0 > 168.9		7.602							
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.642	7.756	-0.114		1056552	10.0			
32 Perfluorooctane Sulfonamide									
497.9 > 78.0		7.757				ND			
30 Perfluorotridecanoic acid									
663.0 > 618.9		7.753				ND			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
33 Perfluorotetradecanoic acid									
712.9 > 668.8		7.885				ND			
712.9 > 169.0		7.885							

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

s - Failed ISTD Recovery Test

Report Date: 19-Jul-2016 15:53:23 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18043.d

Injection Date: 18-Jul-2016 20:29:31 Instrument ID: LC_LCMS5

Lims ID: MB 280-333869/1-A

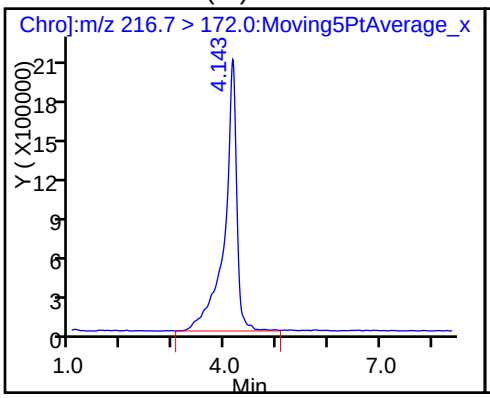
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 38

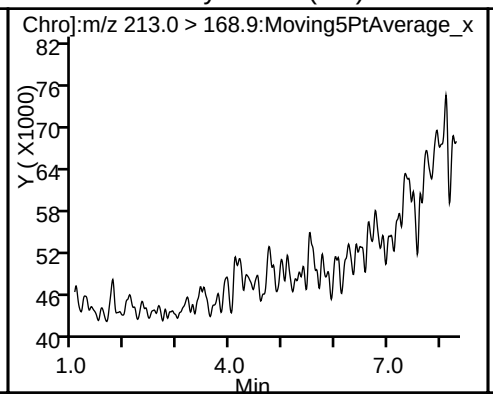
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

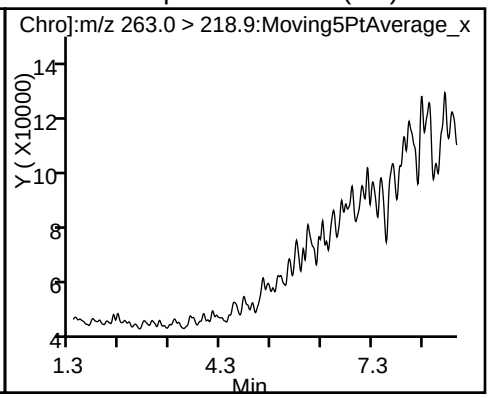
* 1 13C4 PFBA (IS)



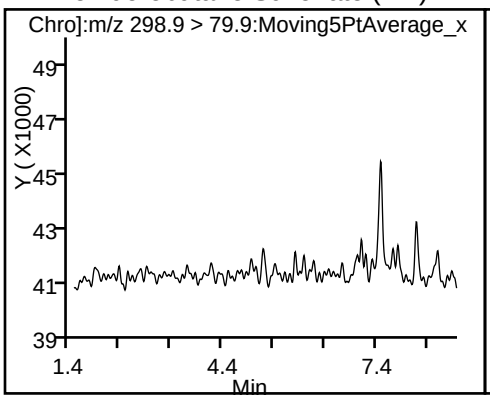
2 Perfluorobutyric acid (ND)



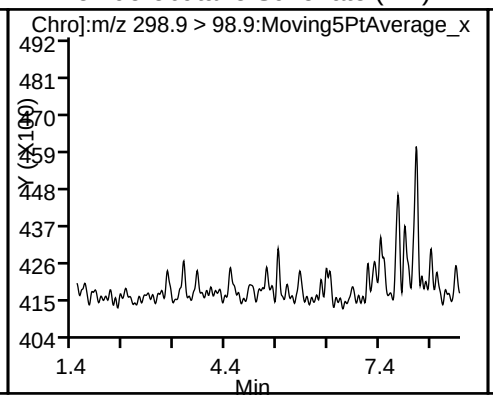
3 Perfluoropentanoic acid (ND)



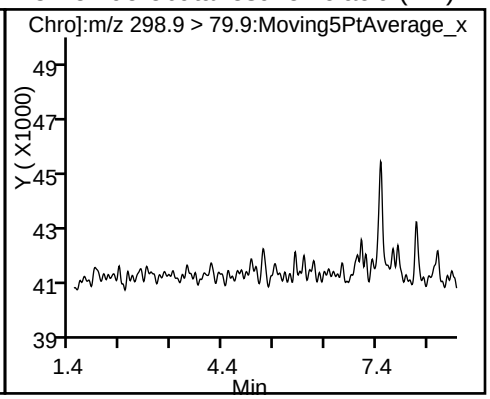
4 Perfluorobutane Sulfonate (ND)



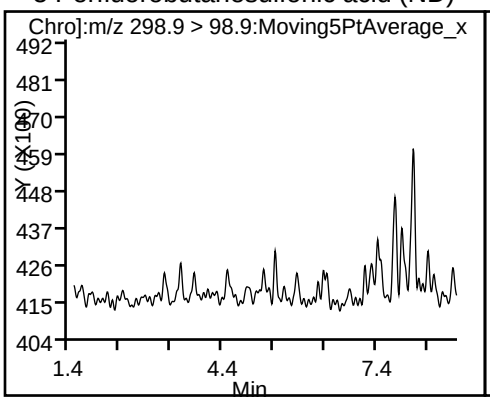
4 Perfluorobutane Sulfonate (ND)



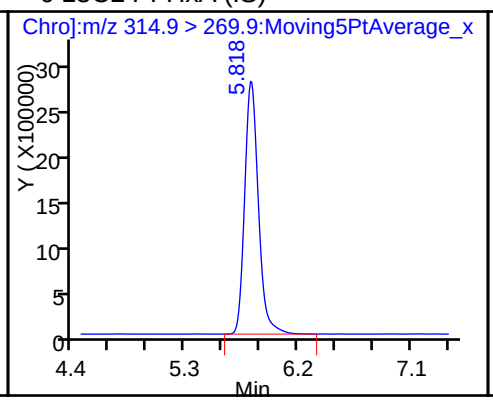
5 Perfluorobutanesulfonic acid (ND)



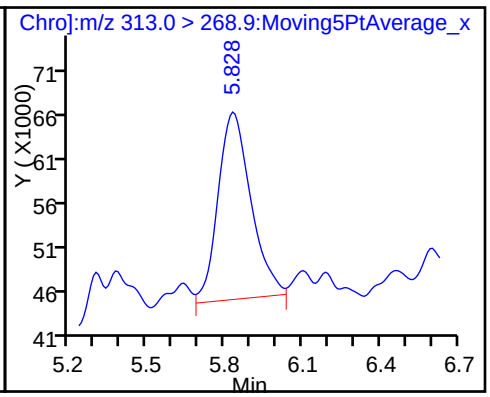
5 Perfluorobutanesulfonic acid (ND)



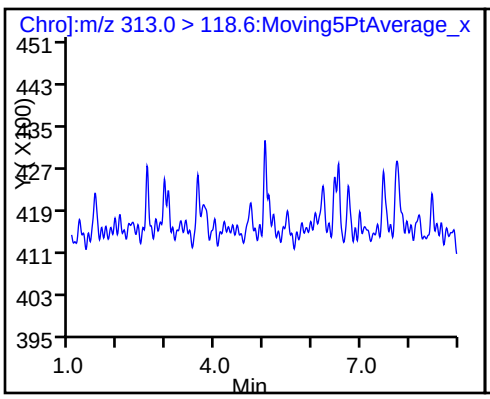
* 6 13C2 PFHxA (IS)



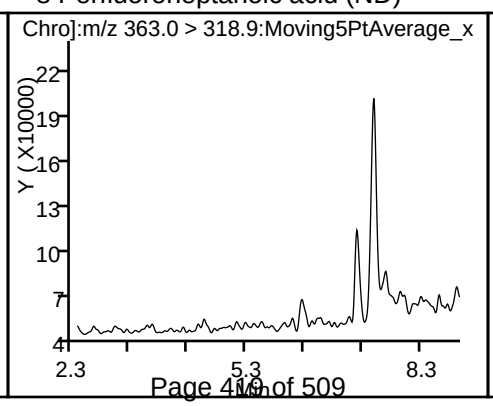
7 Perfluorohexanoic acid



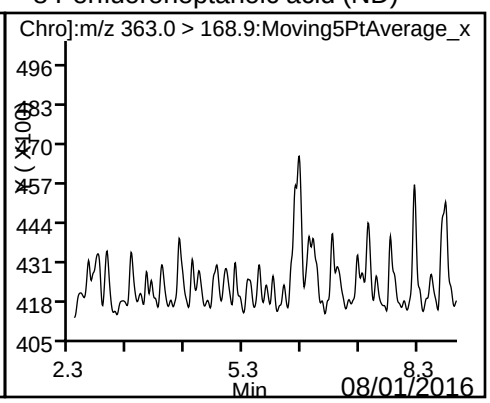
7 Perfluorohexanoic acid



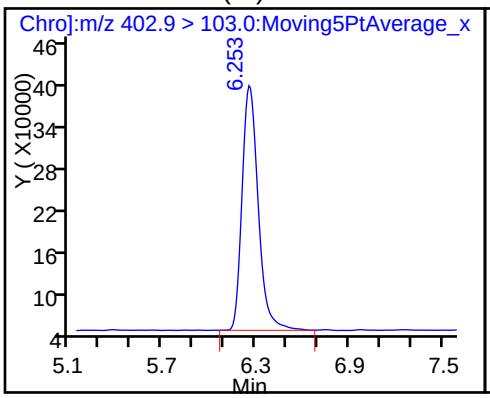
8 Perfluoroheptanoic acid (ND)



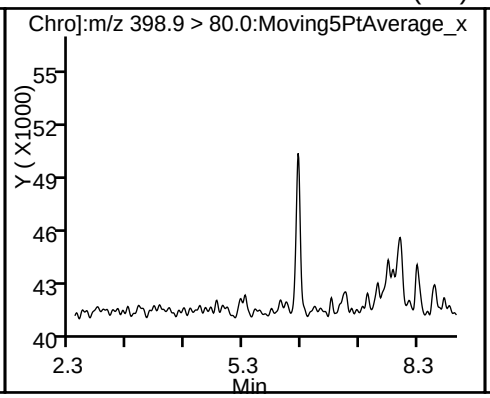
8 Perfluoroheptanoic acid (ND)



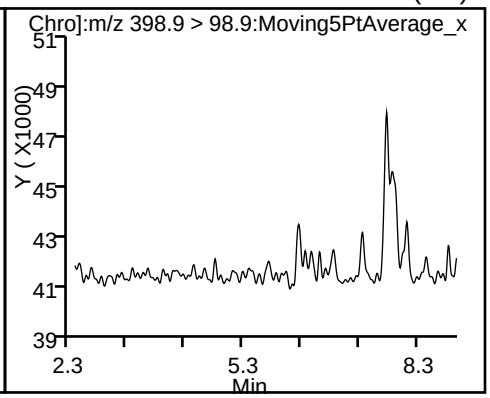
* 9 18O2 PFHxS (IS)



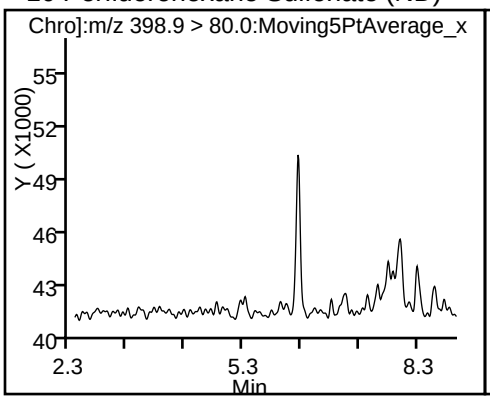
11 Perfluorohexanesulfonic acid (ND)



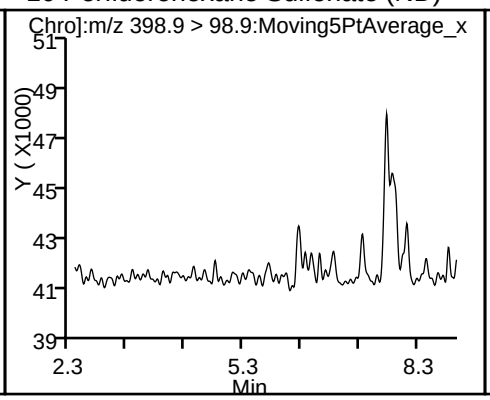
11 Perfluorohexanesulfonic acid (ND)



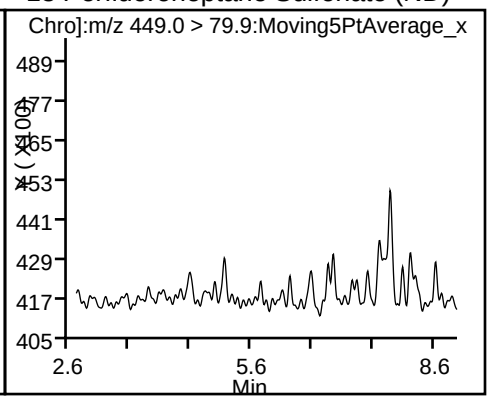
10 Perfluorohexane Sulfonate (ND)



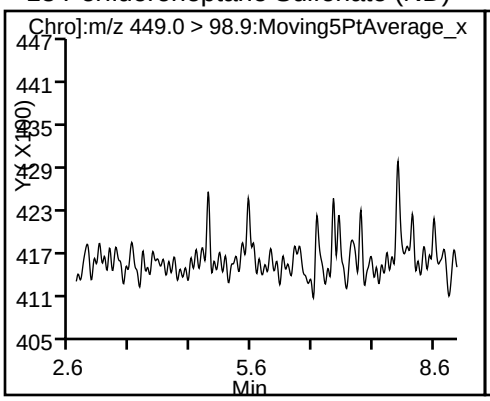
10 Perfluorohexane Sulfonate (ND)



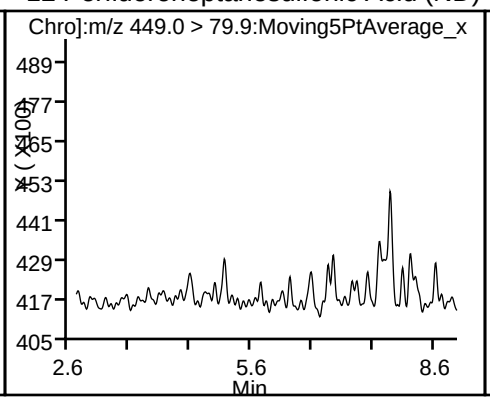
13 Perfluoroheptane Sulfonate (ND)



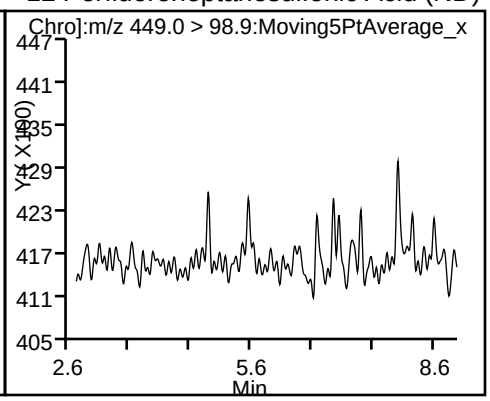
13 Perfluoroheptane Sulfonate (ND)



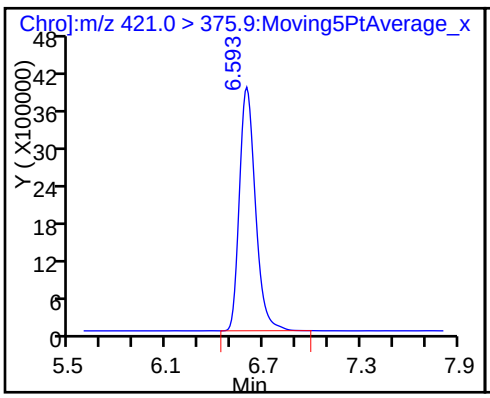
12 Perfluoroheptanesulfonic Acid (ND)



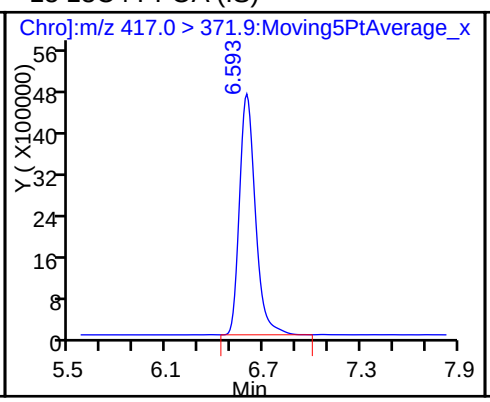
12 Perfluoroheptanesulfonic Acid (ND)



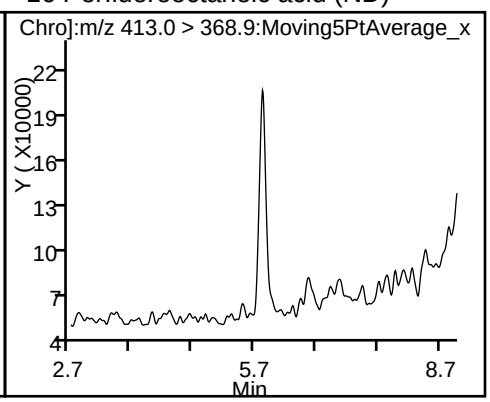
$ 14 13C8 PFOA



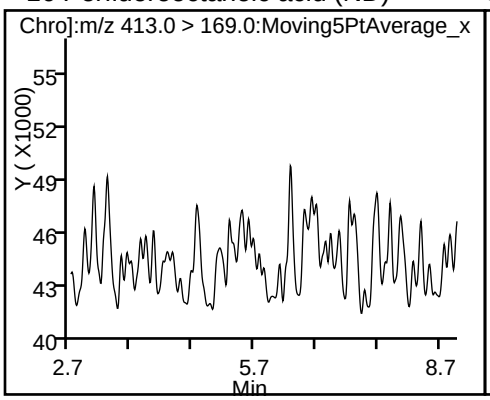
* 15 13C4 PFOA (IS)



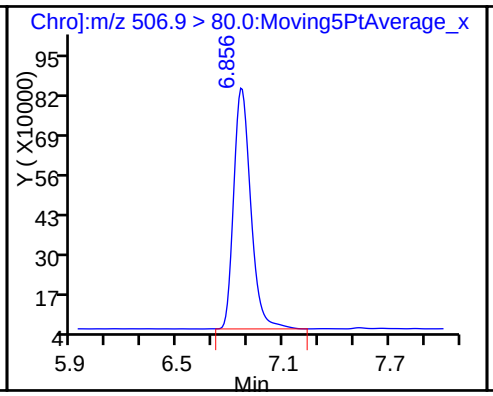
16 Perfluorooctanoic acid (ND)



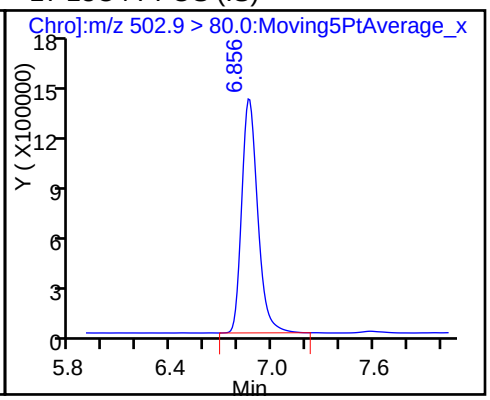
16 Perfluorooctanoic acid (ND)



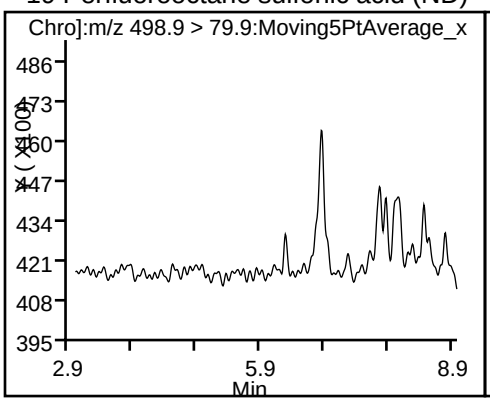
$ 18 13C8 PFOS



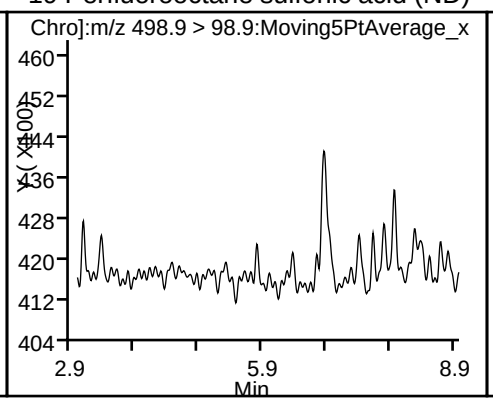
* 17 13C4 PFOS (IS)



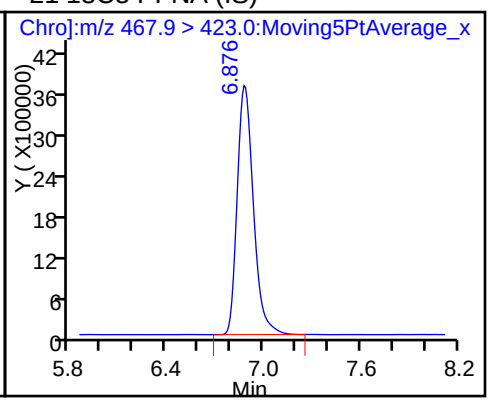
19 Perfluorooctane sulfonic acid (ND)



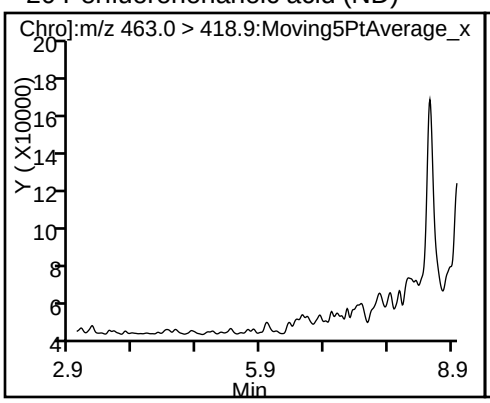
19 Perfluorooctane sulfonic acid (ND)



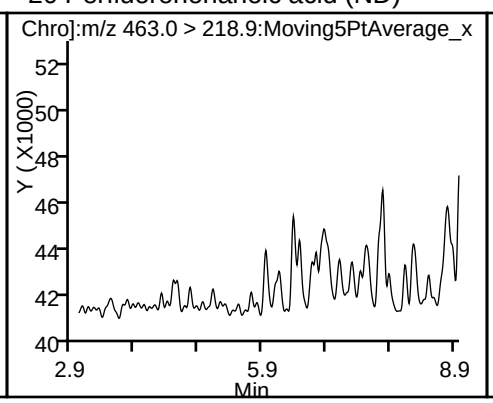
* 21 13C5 PFNA (IS)



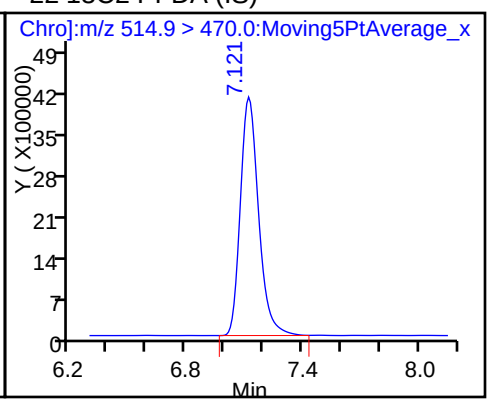
20 Perfluorononanoic acid (ND)



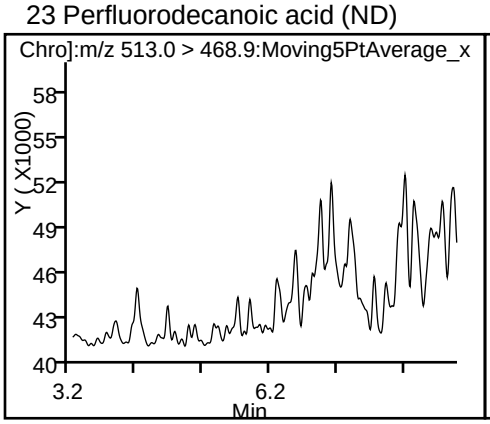
20 Perfluorononanoic acid (ND)



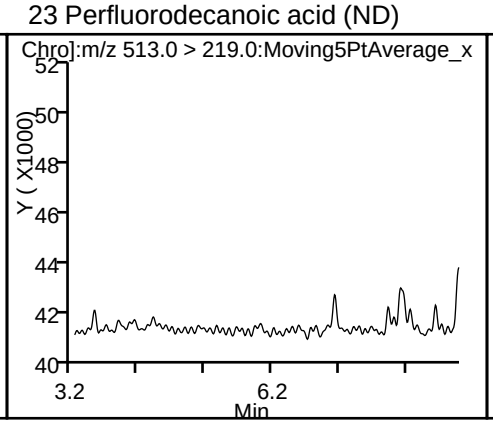
* 22 13C2 PFDA (IS)



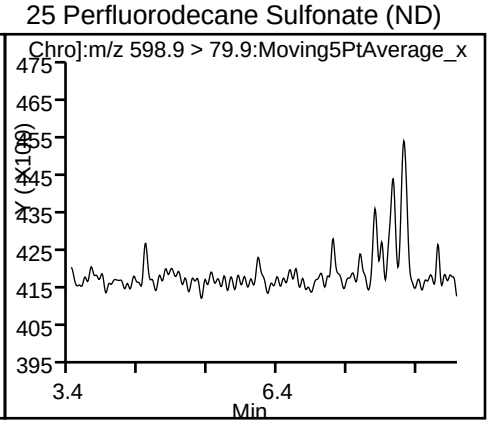
23 Perfluorodecanoic acid (ND)



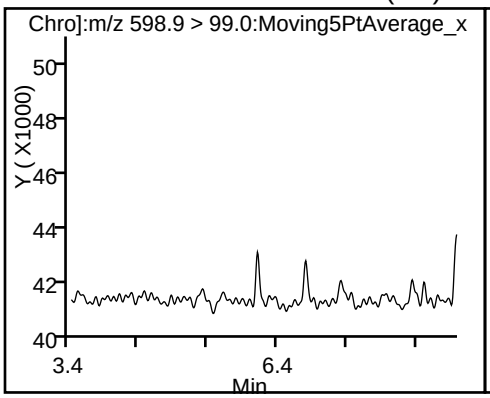
23 Perfluorodecanoic acid (ND)



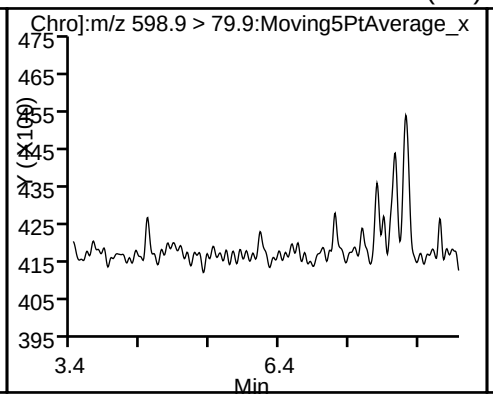
25 Perfluorodecane Sulfonate (ND)



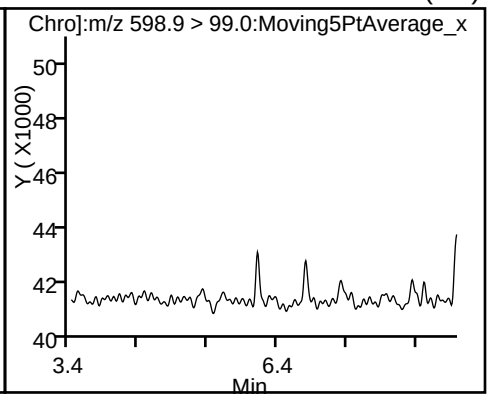
25 Perfluorodecane Sulfonate (ND)



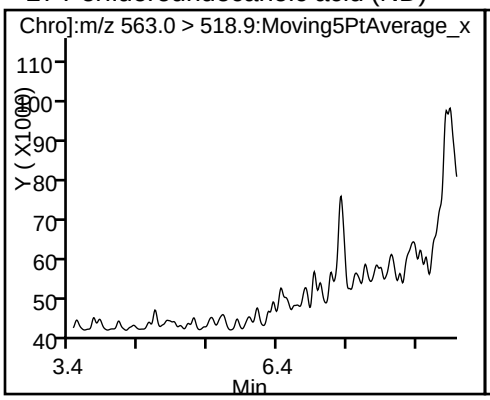
24 Perfluorodecane Sulfonic acid (ND)



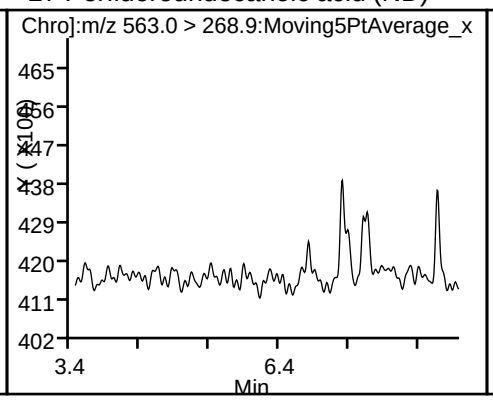
24 Perfluorodecane Sulfonic acid (ND)



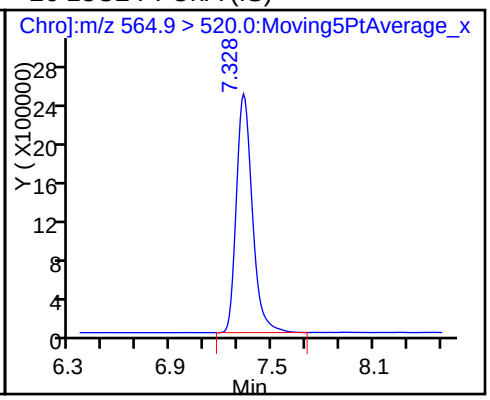
27 Perfluoroundecanoic acid (ND)



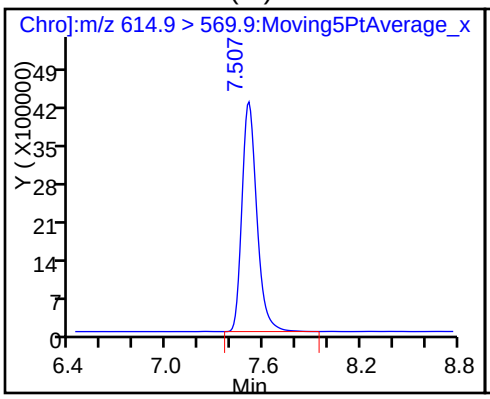
27 Perfluoroundecanoic acid (ND)



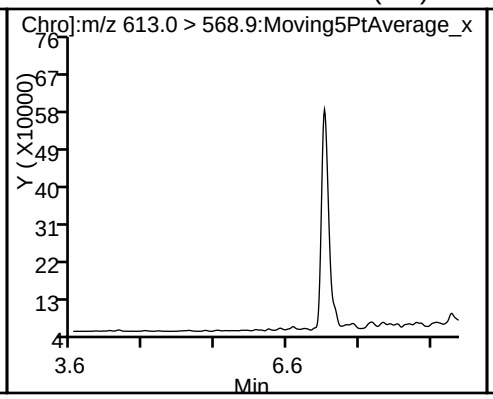
* 26 13C2 PFUnA (IS)



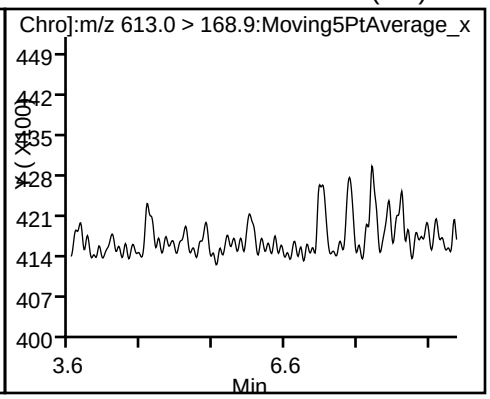
* 28 13C2 PFDoA (IS)



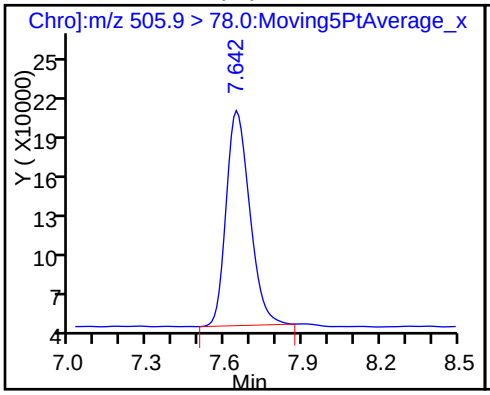
29 Perfluorododecanoic acid (ND)



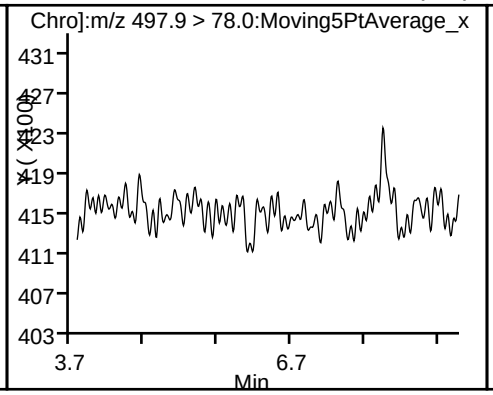
29 Perfluorododecanoic acid (ND)



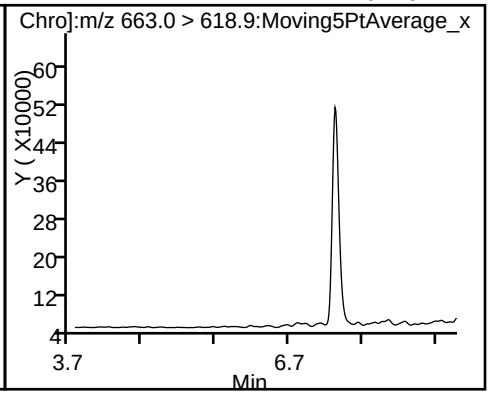
* 31 13C8 FOSA (IS)



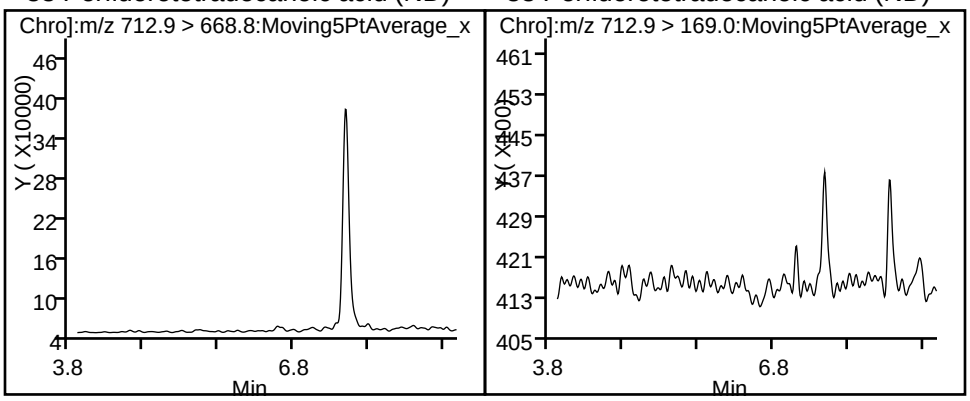
32 Perfluorooctane Sulfonamide (ND)



30 Perfluorotridecanoic acid (ND)



33 Perfluorotetradecanoic acid (ND) 33 Perfluorotetradecanoic acid (ND)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 280-334942/1-A

Matrix: Water | Lab File ID: PC516G28050.d

Analysis Method: DV-LC-0012 | Date Collected:

Extraction Method: 3535 | Date Extracted: 07/25/2016 10:50

Sample wt/vol: 250(mL) | Date Analyzed: 07/28/2016 18:21

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 335652 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.0082	U	0.020	0.0082
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.013	U	0.030	0.013
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.0070	U	0.030	0.0070
375-95-1	Perfluorononanoic acid (PFNA)	0.017	U	0.040	0.017
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.013	U	0.030	0.013
335-67-1	Perfluorooctanoic acid (PFOA)	0.0098	U	0.020	0.0098

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	107		60-155
STL01054	13C8 PFOS	101		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28050.d
Lims ID: MB 280-334942/1-A
Client ID:
Sample Type: MB
Inject. Date: 28-Jul-2016 18:21:13 ALS Bottle#: 0 Worklist Smp#: 6
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: MB 280-334942/1-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 29-Jul-2016 10:36:50 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK010

First Level Reviewer: meyera Date: 29-Jul-2016 09:41:16

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	3.954	4.067	-0.113		22880791	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	3.878	4.068	-0.190	0.981	175498	0.0749			
3 Perfluoropentanoic acid									
263.0 > 218.9		5.147				ND			
4 Perfluorobutane Sulfonate									
298.9 > 79.9		5.260				ND			
298.9 > 98.9		5.260							
5 Perfluorobutanesulfonic acid									
298.9 > 79.9		5.260				ND			
298.9 > 98.9		5.260							
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.676	5.724	-0.048		17769832	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9		5.724				ND			
313.0 > 118.6		5.724							
8 Perfluoroheptanoic acid									
363.0 > 318.9		6.159				ND			
363.0 > 168.9		6.159							
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.120	6.168	-0.048		2435007	9.46			
11 Perfluorohexanesulfonic acid									
398.9 > 80.0		6.168				ND			
398.9 > 98.9		6.168							
10 Perfluorohexane Sulfonate									
398.9 > 80.0		6.168				ND			
398.9 > 98.9		6.168							

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9		6.498				ND			
449.0 > 98.9		6.498							
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9		6.498				ND			
449.0 > 98.9		6.498							
$ 14 13C8 PFOA									
421.0 > 375.9	6.470	6.508	-0.038	1.000	22138774	10.4			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.470	6.508	-0.038		26208124	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9		6.508				ND			
413.0 > 169.0		6.508							
$ 18 13C8 PFOS									
506.9 > 80.0	6.742	6.780	-0.038	1.000	5116544	9.38			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.743	6.781	-0.038		8526452	9.56			
19 Perfluorooctane sulfonic acid									
498.9 > 79.9		6.781				ND			
498.9 > 98.9		6.781							
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.763	6.801	-0.037		21275233	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9		6.801				ND			
463.0 > 218.9		6.801							
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.007	7.045	-0.038		21186384	10.0			
23 Perfluorodecanoic acid									
513.0 > 468.9		7.045				ND			
513.0 > 219.0		7.045							
25 Perfluorodecane Sulfonate									
598.9 > 79.9		7.233				ND			
598.9 > 99.0		7.233							
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9		7.233				ND			
598.9 > 99.0		7.233							
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.224	7.262	-0.038		12442637	10.0			
27 Perfluoroundecanoic acid									
563.0 > 518.9		7.262				ND			
563.0 > 268.9		7.262							
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.403	7.441	-0.038		19756200	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9		7.441				ND			
613.0 > 168.9		7.441							
30 Perfluorotridecanoic acid									
663.0 > 618.9		7.602				ND			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.538	7.557	-0.019		784603	10.0			
32 Perfluorooctane Sulfonamide									
497.9 > 78.0		7.558				ND			
33 Perfluorotetradecanoic acid									
712.9 > 668.8		7.734				ND			
712.9 > 169.0		7.734							

QC Flag Legend

Processing Flags

ND - Not Detected or Marked ND

s - Failed ISTD Recovery Test

Report Date: 29-Jul-2016 10:37:00 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28050.d

Injection Date: 28-Jul-2016 18:21:13 Instrument ID: LC_LCMS5

Lims ID: MB 280-334942/1-A

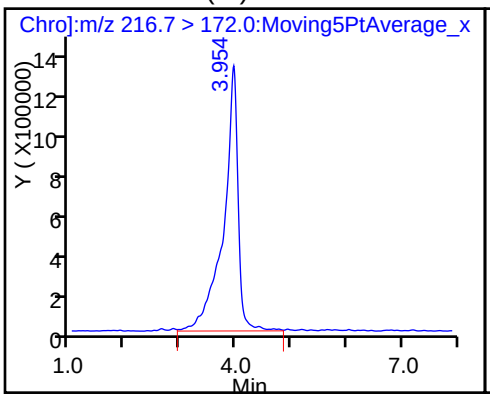
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 6

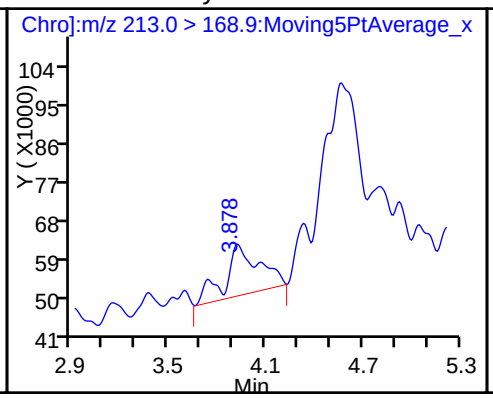
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

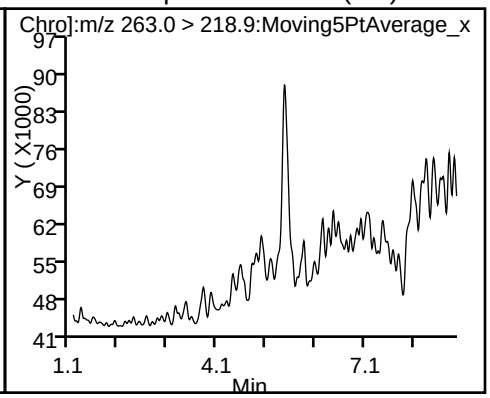
* 1 13C4 PFBA (IS)



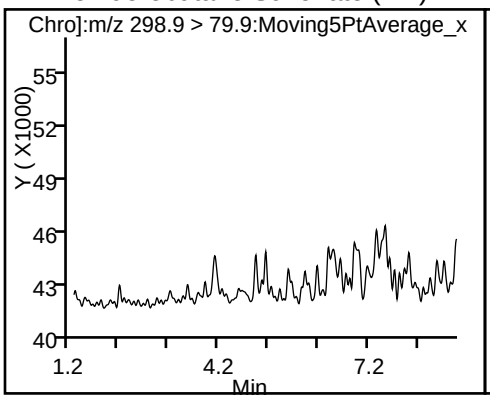
2 Perfluorobutyric acid



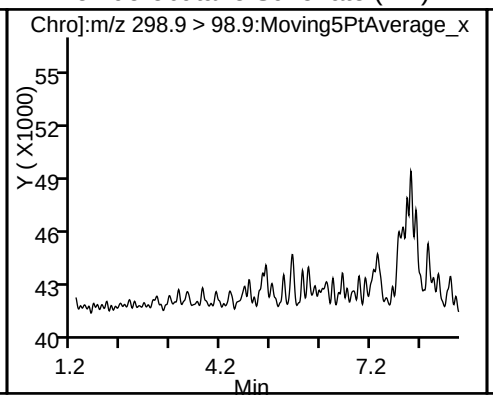
3 Perfluoropentanoic acid (ND)



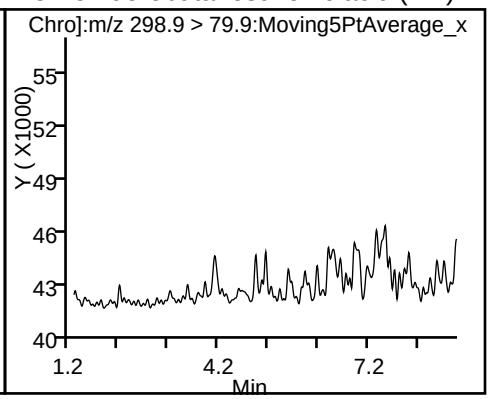
4 Perfluorobutane Sulfonate (ND)



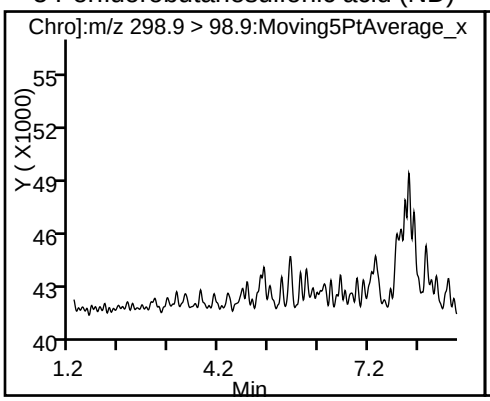
4 Perfluorobutane Sulfonate (ND)



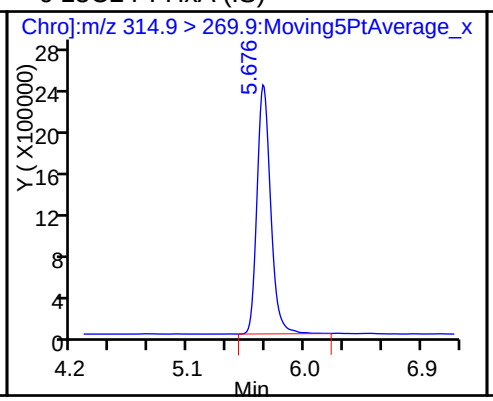
5 Perfluorobutanesulfonic acid (ND)



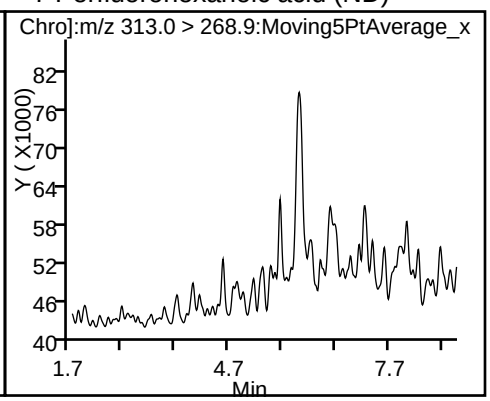
5 Perfluorobutanesulfonic acid (ND)



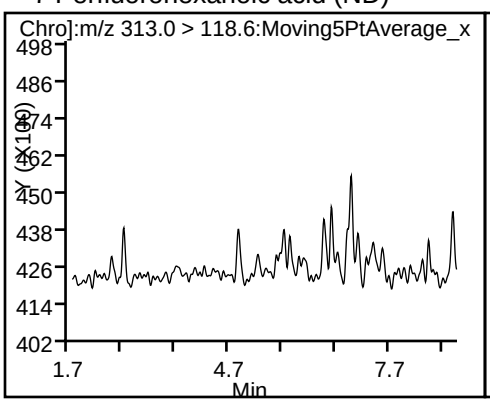
* 6 13C2 PFHxA (IS)



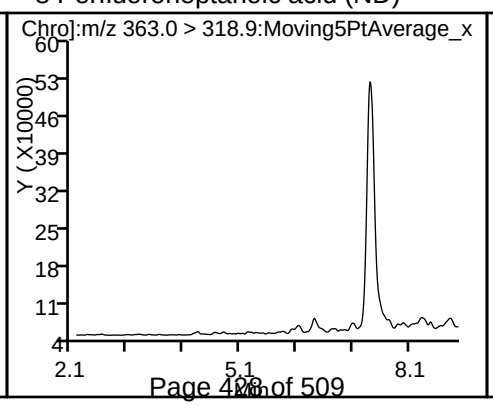
7 Perfluorohexanoic acid (ND)



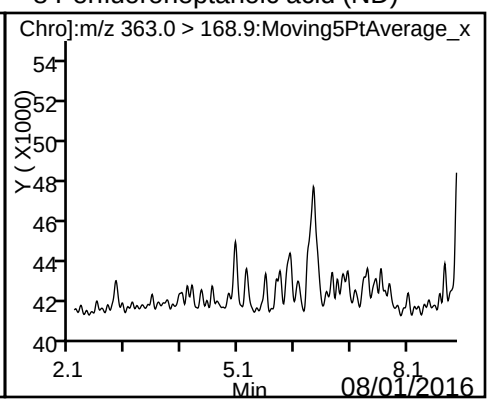
7 Perfluorohexanoic acid (ND)



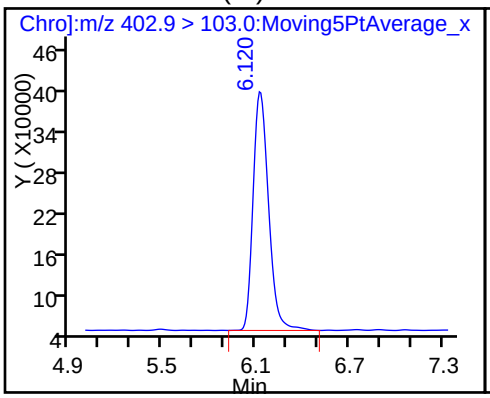
8 Perfluoroheptanoic acid (ND)



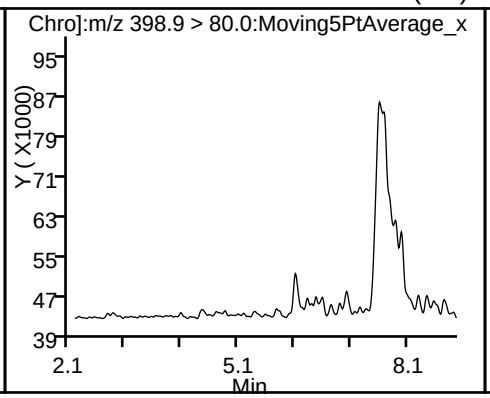
8 Perfluoroheptanoic acid (ND)



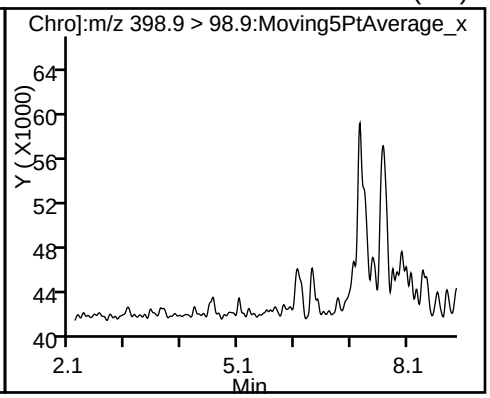
* 9 18O2 PFHxS (IS)



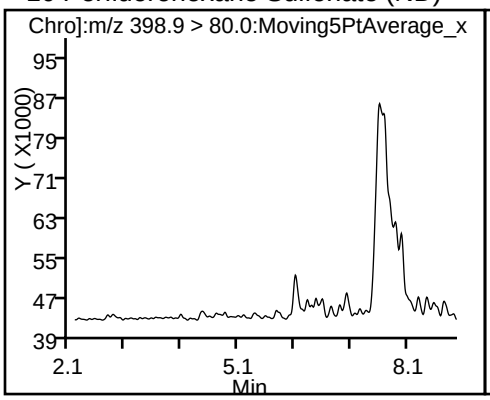
11 Perfluorohexanesulfonic acid (ND)



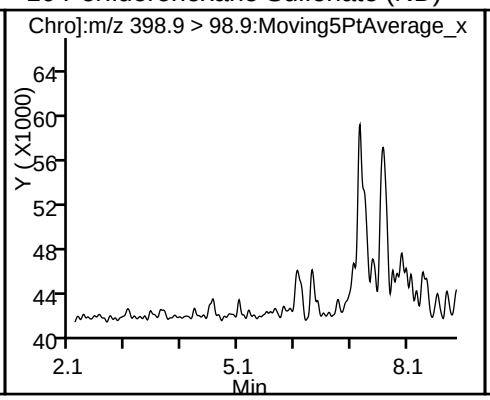
11 Perfluorohexanesulfonic acid (ND)



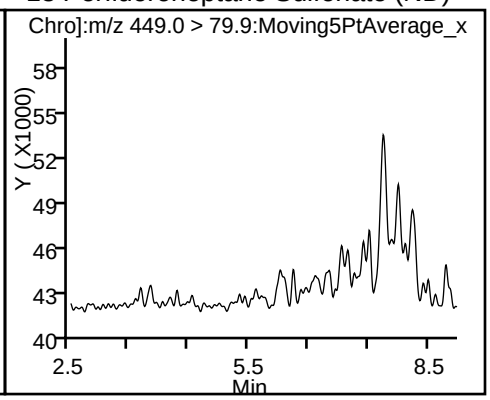
10 Perfluorohexane Sulfonate (ND)



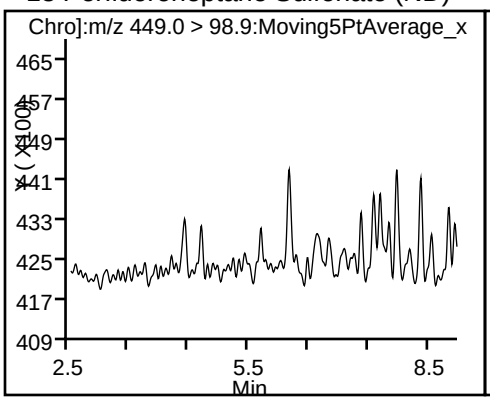
10 Perfluorohexane Sulfonate (ND)



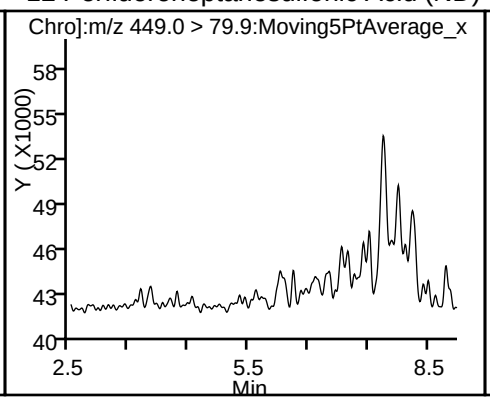
13 Perfluoroheptane Sulfonate (ND)



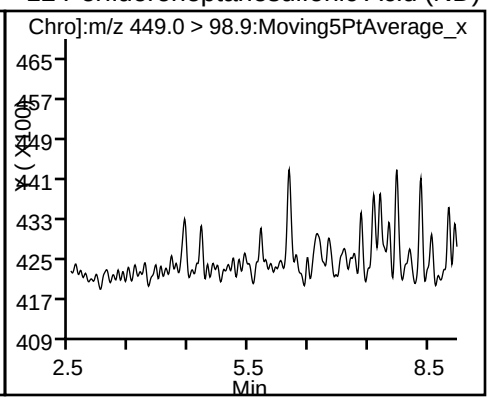
13 Perfluoroheptane Sulfonate (ND)



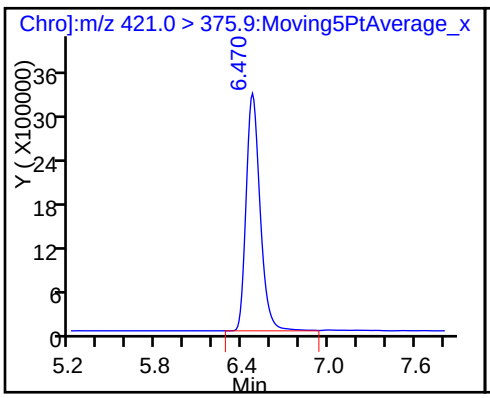
12 Perfluoroheptanesulfonic Acid (ND)



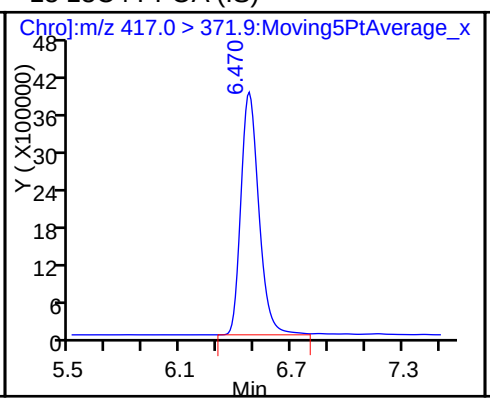
12 Perfluoroheptanesulfonic Acid (ND)



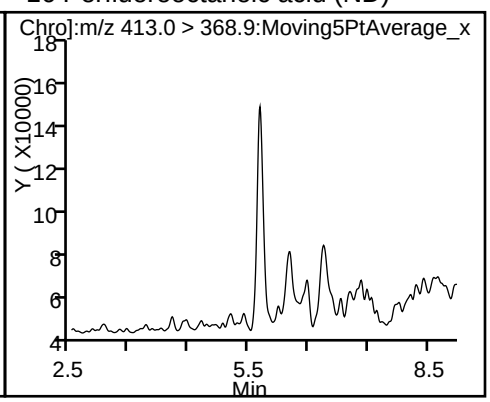
$ 14 13C8 PFOA



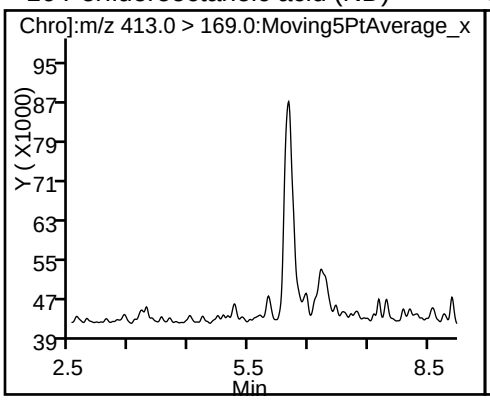
* 15 13C4 PFOA (IS)



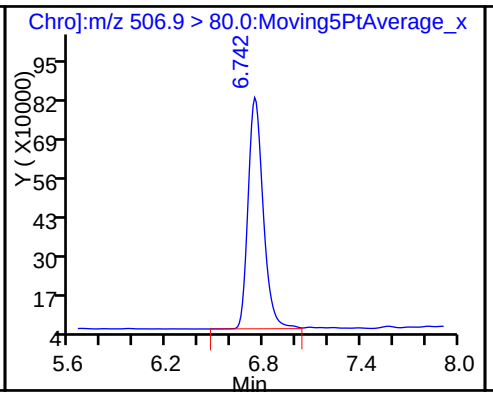
16 Perfluorooctanoic acid (ND)



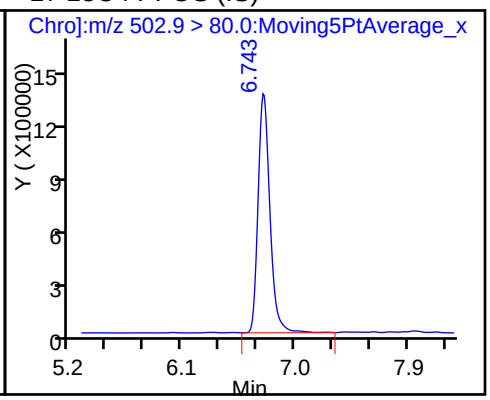
16 Perfluorooctanoic acid (ND)



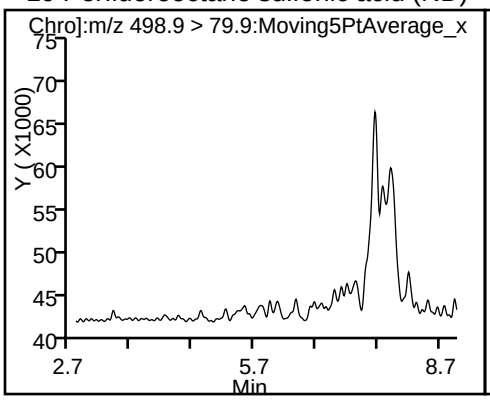
$ 18 13C8 PFOS



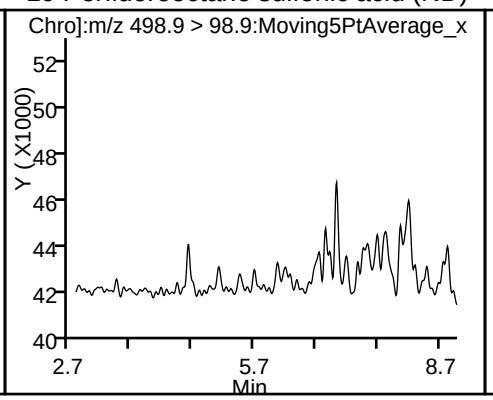
* 17 13C4 PFOS (IS)



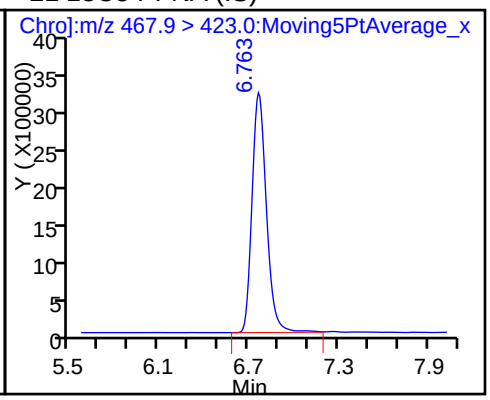
19 Perfluorooctane sulfonic acid (ND)



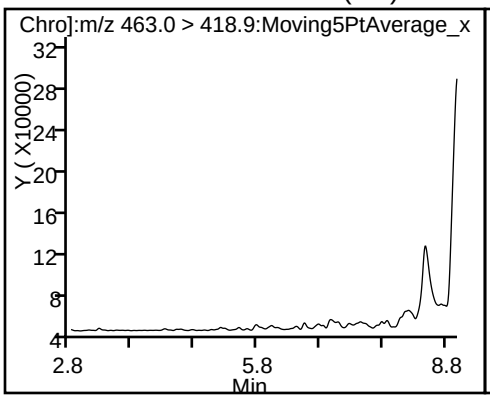
19 Perfluorooctane sulfonic acid (ND)



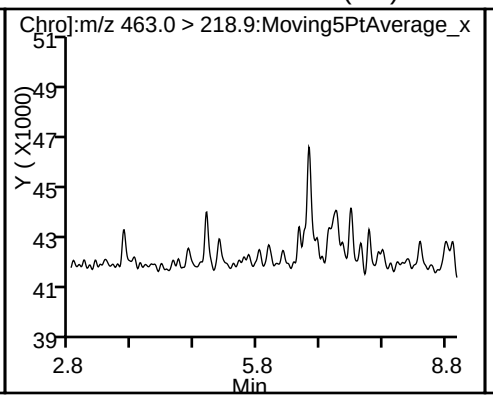
* 21 13C5 PFNA (IS)



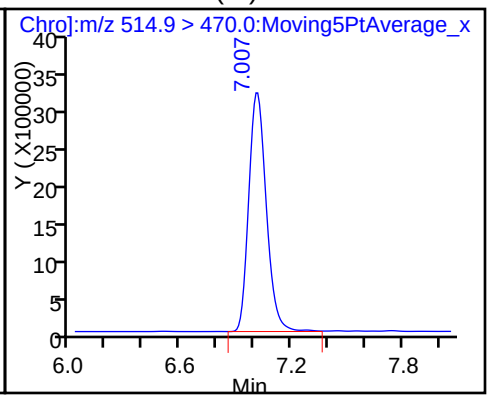
20 Perfluorononanoic acid (ND)



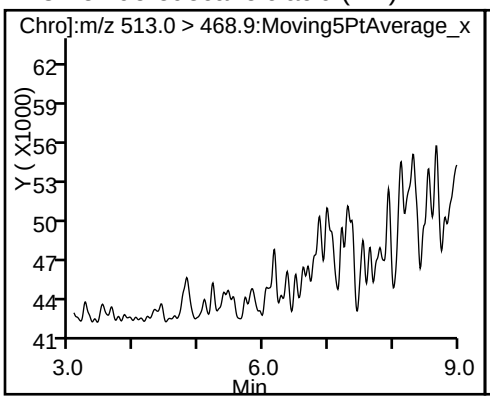
20 Perfluorononanoic acid (ND)



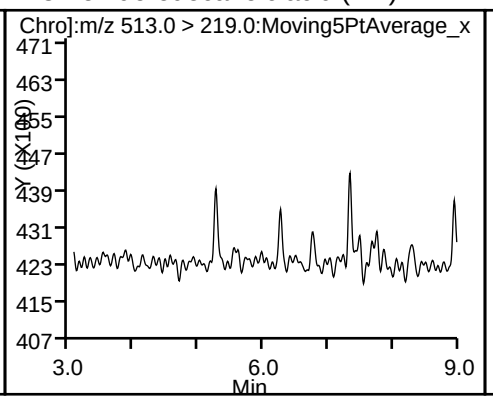
* 22 13C2 PFDA (IS)



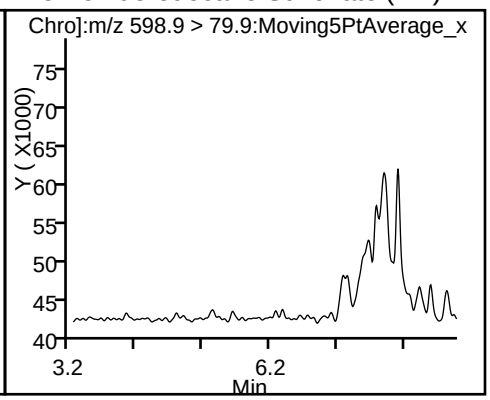
23 Perfluorodecanoic acid (ND)



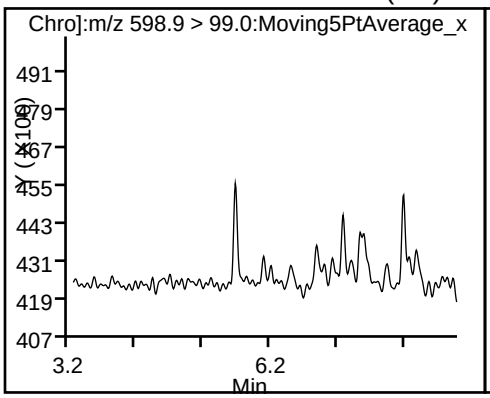
23 Perfluorodecanoic acid (ND)



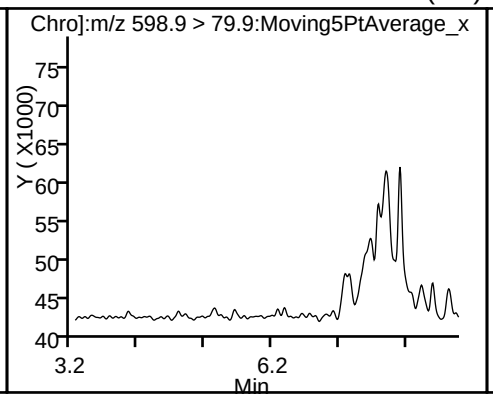
25 Perfluorodecane Sulfonate (ND)



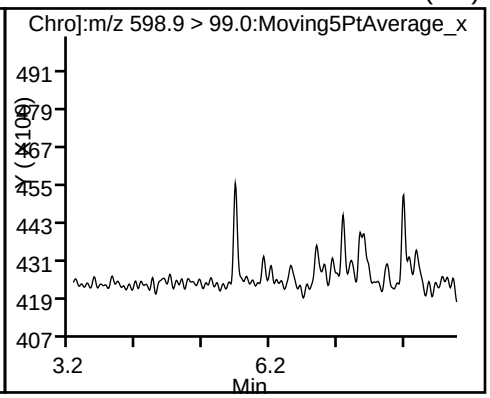
25 Perfluorodecane Sulfonate (ND)



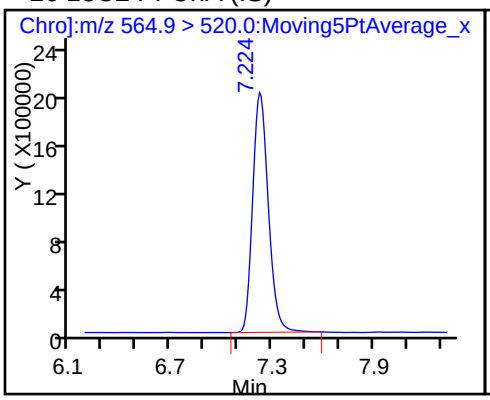
24 Perfluorodecane Sulfonic acid (ND)



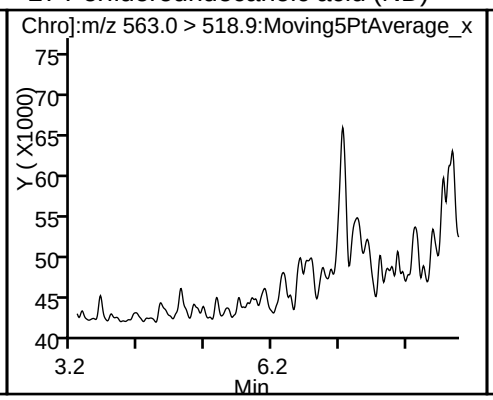
24 Perfluorodecane Sulfonic acid (ND)



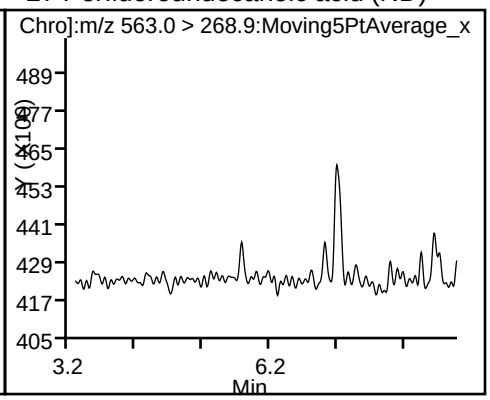
* 26 13C2 PFUnA (IS)



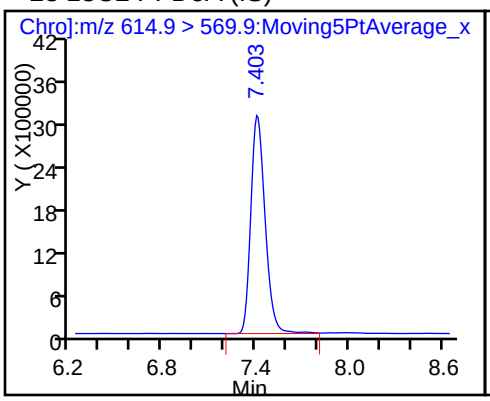
27 Perfluoroundecanoic acid (ND)



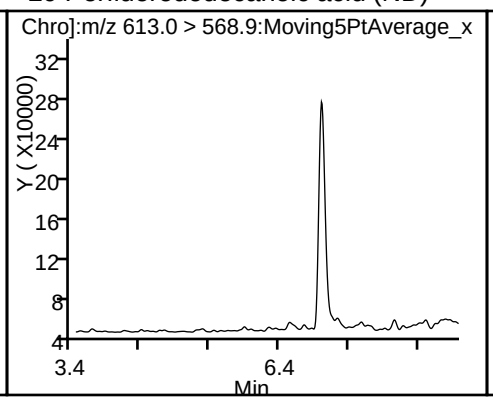
27 Perfluoroundecanoic acid (ND)



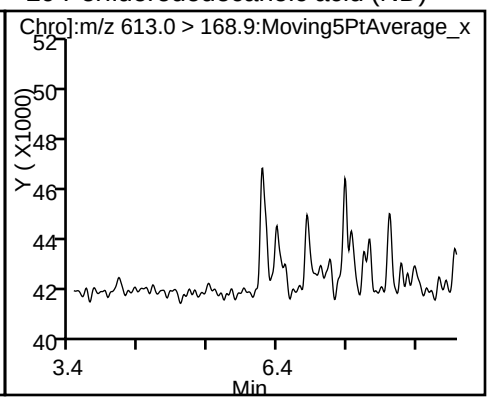
* 28 13C2 PFDoA (IS)



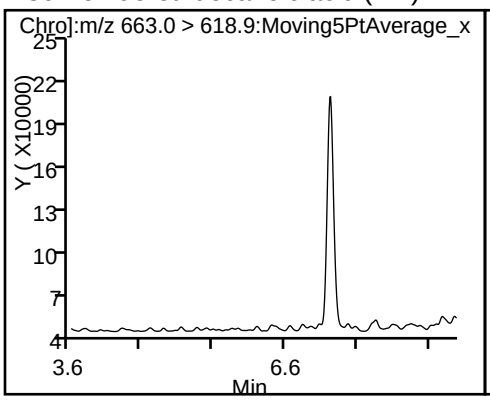
29 Perfluorododecanoic acid (ND)



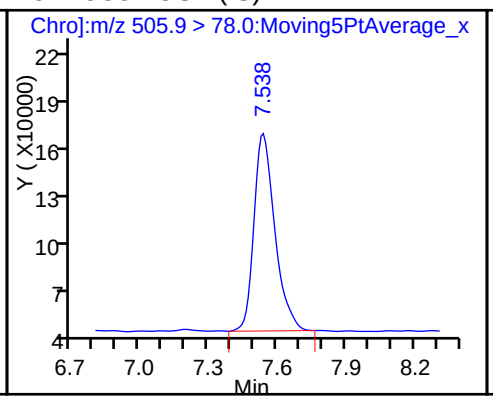
29 Perfluorododecanoic acid (ND)



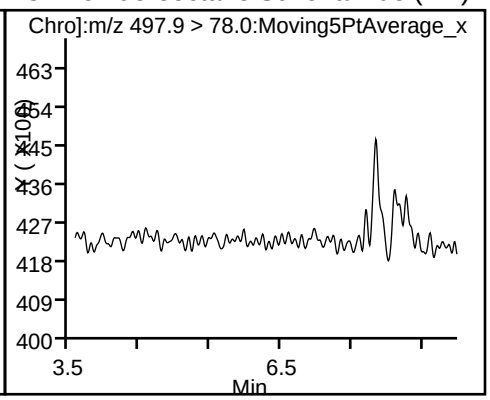
30 Perfluorotridecanoic acid (ND)



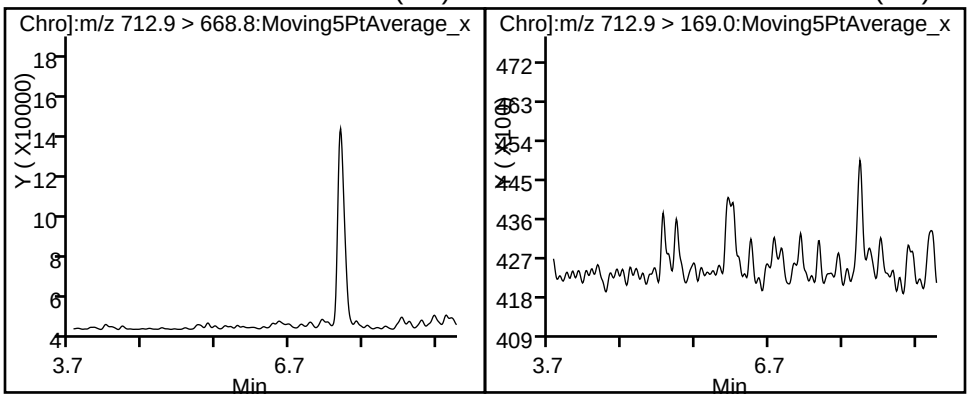
* 31 13C8 FOSA (IS)



32 Perfluorooctane Sulfonamide (ND)



33 Perfluorotetradecanoic acid (ND) 33 Perfluorotetradecanoic acid (ND)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: | Lab Sample ID: LCS 280-333869/2-A

Matrix: Water | Lab File ID: PC516G18044.d

Analysis Method: DV-LC-0012 | Date Collected:

Extraction Method: 3535 | Date Extracted: 07/16/2016 07:25

Sample wt/vol: 250(mL) | Date Analyzed: 07/18/2016 20:41

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 334166 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.111		0.020	0.0082
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.165		0.030	0.013
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.137		0.030	0.0070
375-95-1	Perfluorononanoic acid (PFNA)	0.143		0.040	0.017
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.128		0.030	0.013
335-67-1	Perfluorooctanoic acid (PFOA)	0.154		0.020	0.0098

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	103		60-155
STL01054	13C8 PFOS	99		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18044.d
Lims ID: LCS 280-333869/2-A
Client ID:
Sample Type: LCS
Inject. Date: 18-Jul-2016 20:41:49 ALS Bottle#: 0 Worklist Smp#: 39
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: LCS 280-333869/2-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 19-Jul-2016 15:53:00 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK035

First Level Reviewer: fiedlerh Date: 19-Jul-2016 13:31:46

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.257	4.333	-0.076		33371892	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	4.248	4.333	-0.085	0.998	24228576	6.77			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.327	5.346	-0.019	0.902	18462801	7.89			
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.440	5.459	-0.019	0.858	7492174	5.54			
298.9 > 98.9	5.440	5.459	-0.019	0.858	2279548		3.29(1.80-3.35)		
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.440	5.459	-0.019	0.858	7492174	5.54			
298.9 > 98.9	5.440	5.459	-0.019	0.858	2279548		3.29(2.57-2.57)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.904	5.932	-0.028		19876980	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.904	5.932	-0.028	1.000	13799176	7.34			
313.0 > 118.6	5.923	5.932	-0.009	1.003	358840		38.45(34.05-63.23)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.330	6.358	-0.028	0.948	21633701	8.27			
363.0 > 168.9	6.339	6.358	-0.019	0.949	5354674		4.04(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.338	6.367	-0.029		2449029	9.46			
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.339	6.367	-0.028	1.000	6903541	6.87			
398.9 > 98.9	6.339	6.367	-0.028	1.000	2116861		3.26(1.85-1.85)		
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.339	6.367	-0.028	1.000	6903541	6.87			R
398.9 > 98.9	6.339	6.367	-0.028	1.000	2116861		3.26(1.30-2.41)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.669	6.688	-0.019	0.961	7562475	6.50			
449.0 > 98.9	6.659	6.688	-0.029	0.959	2409783		3.14(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.669	6.688	-0.019	0.961	7562475	6.50			
449.0 > 98.9	6.659	6.688	-0.029	0.959	2409783		3.14(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.678	6.697	-0.019	1.000	24953263	10.3			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.679	6.698	-0.019		30053157	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.679	6.698	-0.019	1.000	24184673	7.71			
413.0 > 169.0	6.679	6.698	-0.019	1.000	7560242		3.20(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.941	6.970	-0.029	1.000	5567340	9.49			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.942	6.970	-0.028		9176151	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.942	6.970	-0.028	1.000	7209023	6.39			R
498.9 > 98.9	6.942	6.970	-0.028	1.000	2532569		2.85(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.962	6.990	-0.028		24934007	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.962	6.990	-0.028	1.000	20092497	7.17			
463.0 > 218.9	6.962	6.990	-0.028	1.000	2844475		7.06(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.206	7.225	-0.019		26230563	10.0			
23 Perfluorodecanoic acid									
513.0 > 468.9	7.206	7.225	-0.019	1.000	18599035	7.03			
513.0 > 219.0	7.206	7.225	-0.019	1.000	1725478		10.78(10.49-19.48)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.385	7.404	-0.019	1.064	6308641	5.30			
598.9 > 99.0	7.385	7.404	-0.019	1.064	2176329		2.90(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.385	7.404	-0.019	1.064	6308641	5.30			
598.9 > 99.0	7.385	7.404	-0.019	1.064	2176329		2.90(2.84-2.84)		
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.414	7.433	-0.019	1.000	16083380	6.86			R
563.0 > 268.9	7.404	7.433	-0.029	0.999	1903059		8.45(3.47-6.45)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.414	7.432	-0.018		16510252	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.583	7.602	-0.019		28639305	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.583	7.602	-0.019	1.000	21025688	7.13			
613.0 > 168.9	7.583	7.602	-0.019	1.000	2561212		8.21(5.96-11.06)		
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.737	7.756	-0.019		980305	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.729	7.757	-0.028	0.999	873963	8.21			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.734	7.753	-0.019	1.020	17076430	6.38			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.857	7.885	-0.028	1.036	12893191	7.62			
712.9 > 169.0	7.857	7.885	-0.028	1.036	2017142		6.39(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

s - Failed ISTD Recovery Test

Report Date: 19-Jul-2016 15:53:27 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18044.d

Injection Date: 18-Jul-2016 20:41:49 Instrument ID: LC_LCMS5

Lims ID: LCS 280-333869/2-A

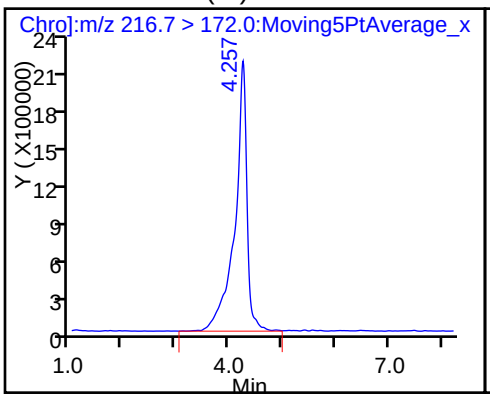
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 39

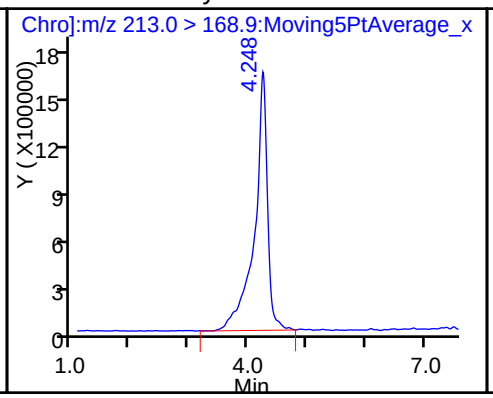
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

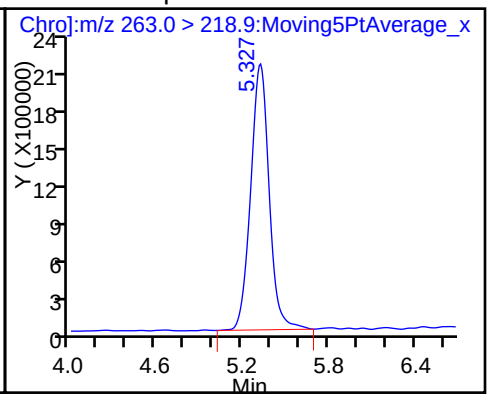
* 1 13C4 PFBA (IS)



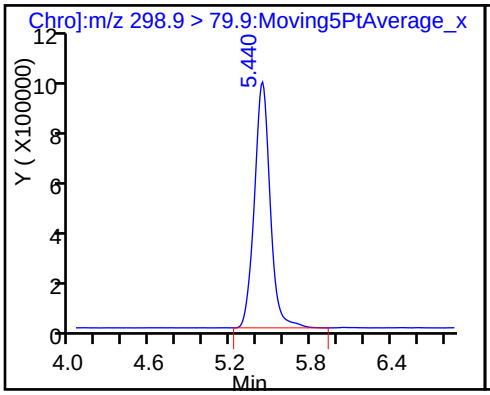
2 Perfluorobutyric acid



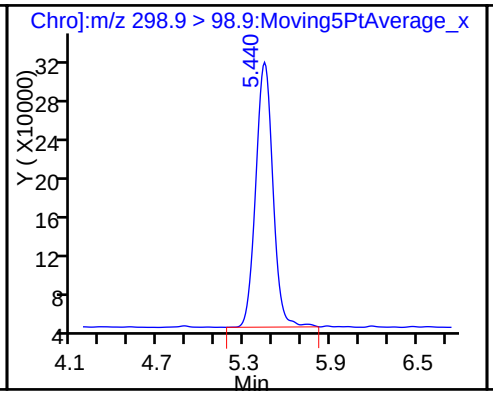
3 Perfluoropentanoic acid



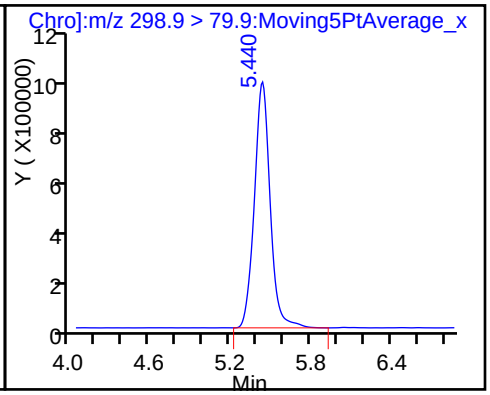
4 Perfluorobutane Sulfonate



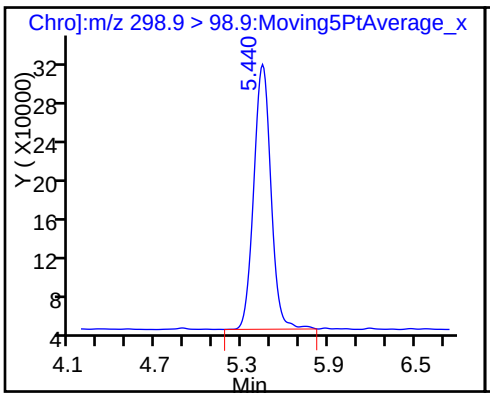
4 Perfluorobutane Sulfonate



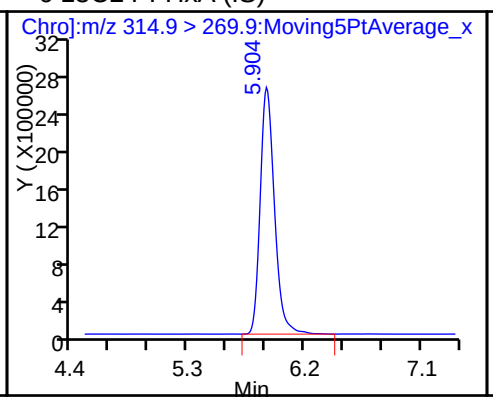
5 Perfluorobutanesulfonic acid



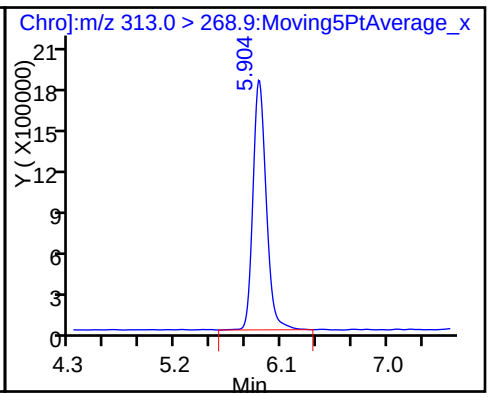
5 Perfluorobutanesulfonic acid



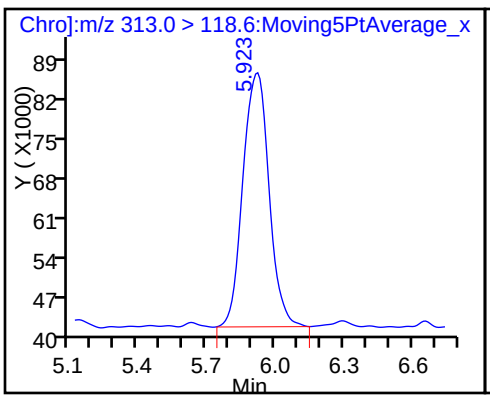
* 6 13C2 PFHxA (IS)



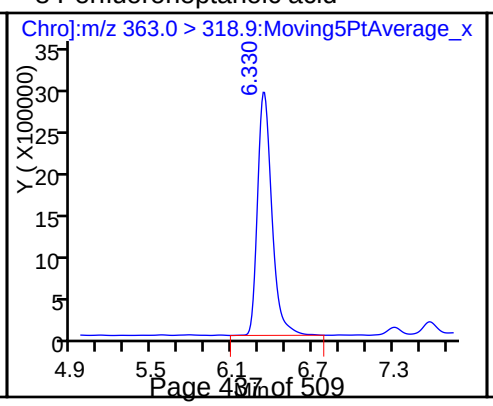
7 Perfluorohexanoic acid



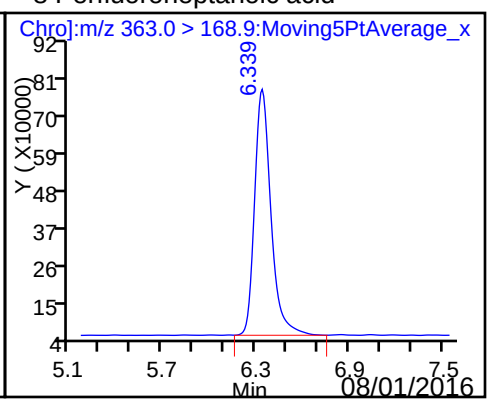
7 Perfluorohexanoic acid



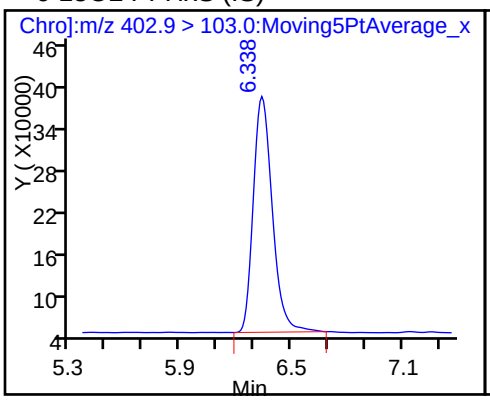
8 Perfluoroheptanoic acid



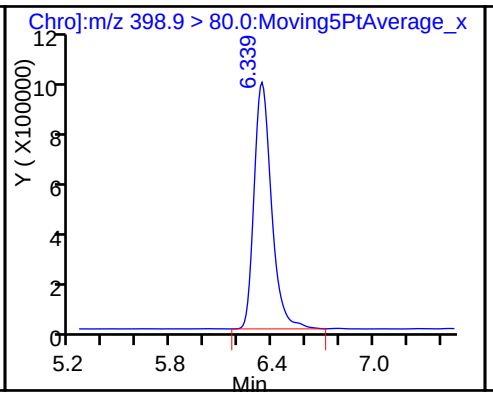
8 Perfluoroheptanoic acid



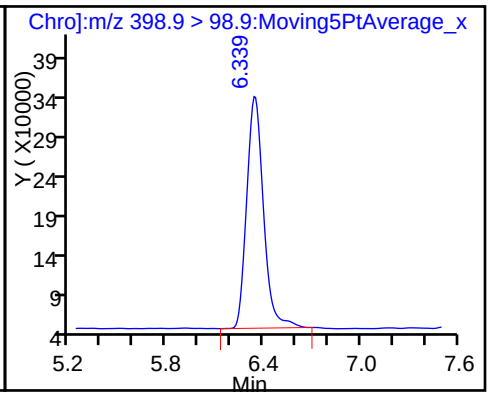
* 9 18O2 PFHxS (IS)



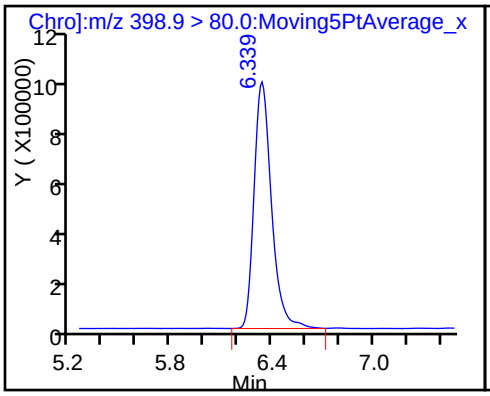
11 Perfluorohexanesulfonic acid



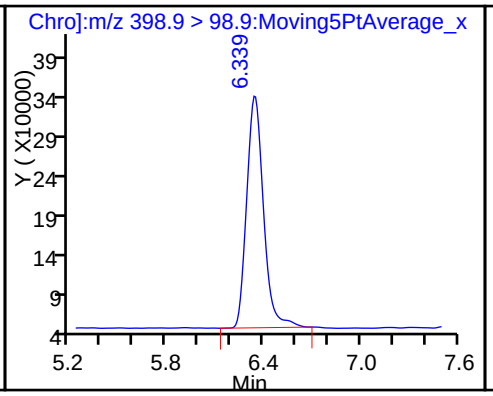
11 Perfluorohexanesulfonic acid



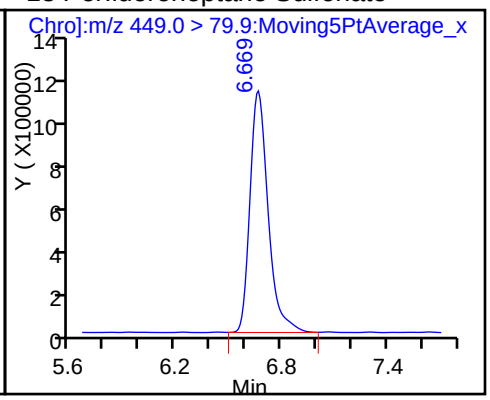
10 Perfluorohexane Sulfonate



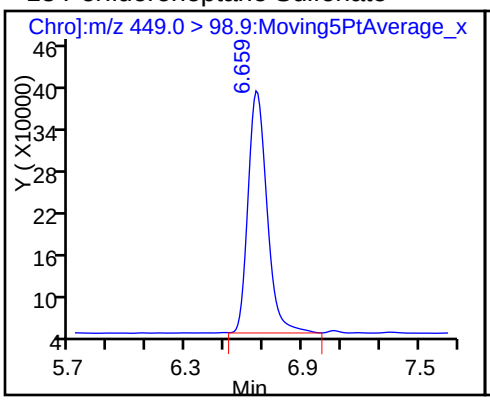
10 Perfluorohexane Sulfonate



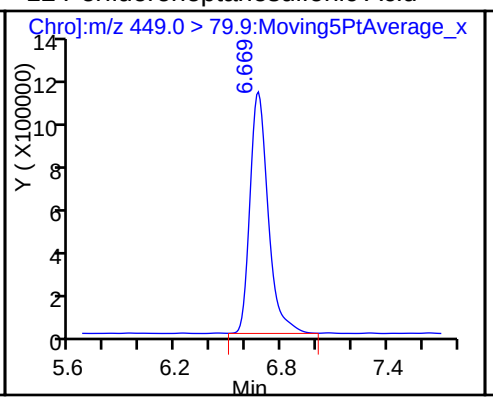
13 Perfluoroheptane Sulfonate



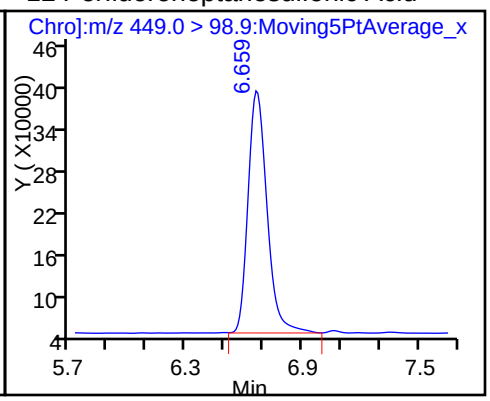
13 Perfluoroheptane Sulfonate



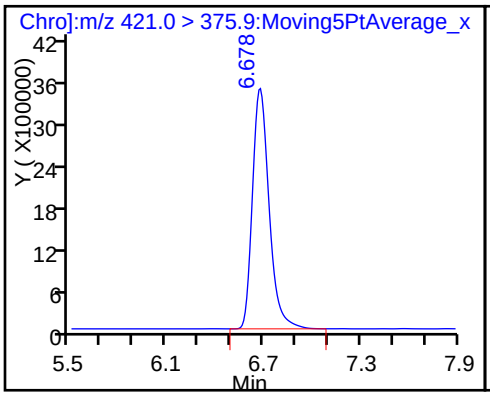
12 Perfluoroheptanesulfonic Acid



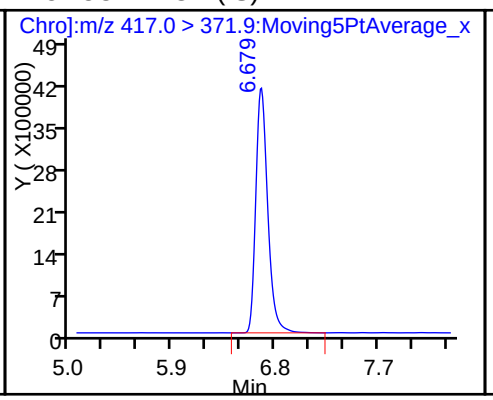
12 Perfluoroheptanesulfonic Acid



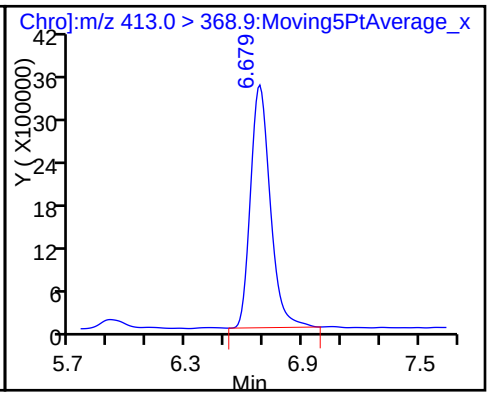
$ 14 13C8 PFOA



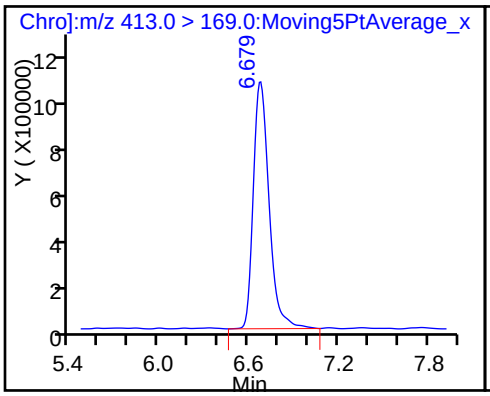
* 15 13C4 PFOA (IS)



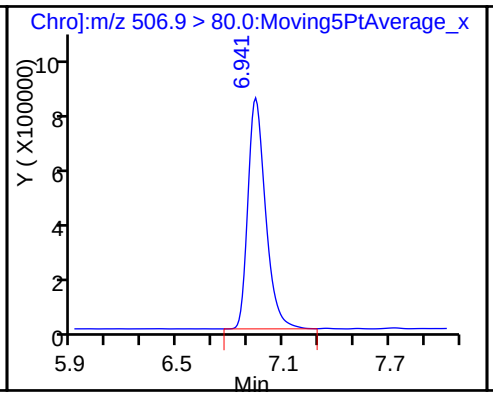
16 Perfluorooctanoic acid



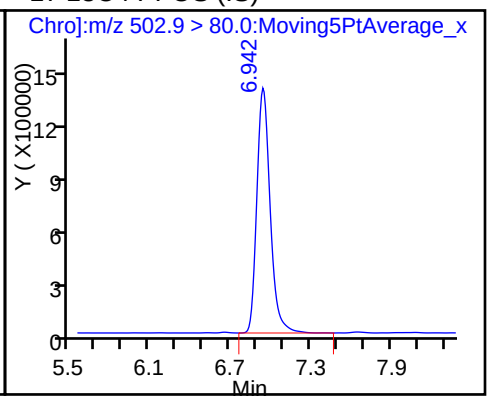
16 Perfluorooctanoic acid



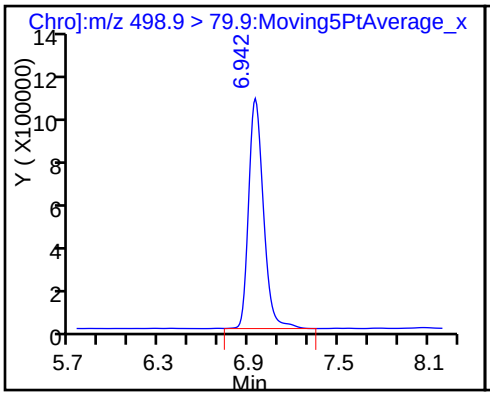
$ 18 13C8 PFOS



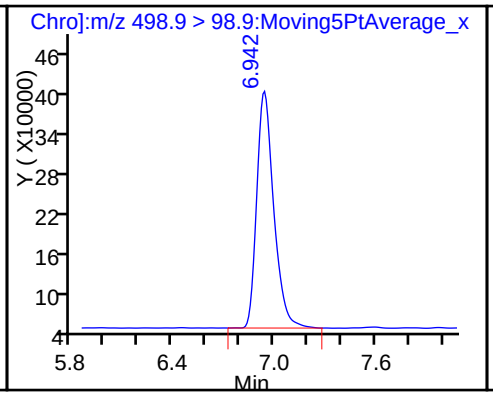
* 17 13C4 PFOS (IS)



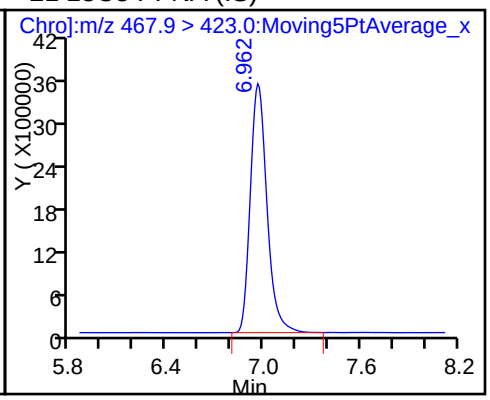
19 Perfluorooctane sulfonic acid



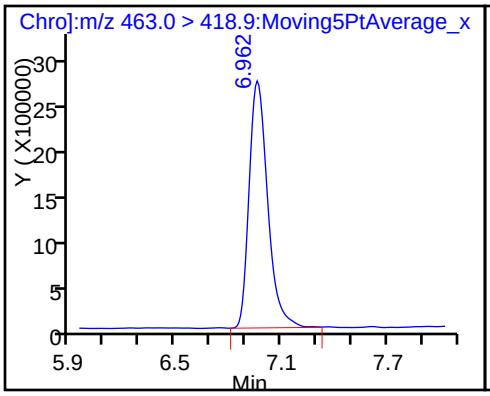
19 Perfluorooctane sulfonic acid



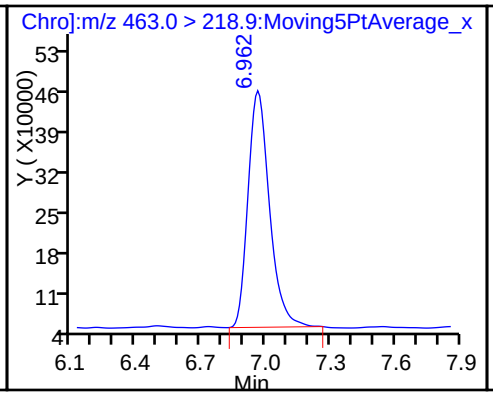
* 21 13C5 PFNA (IS)



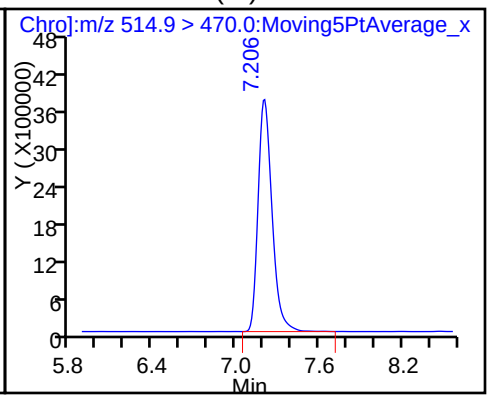
20 Perfluorononanoic acid



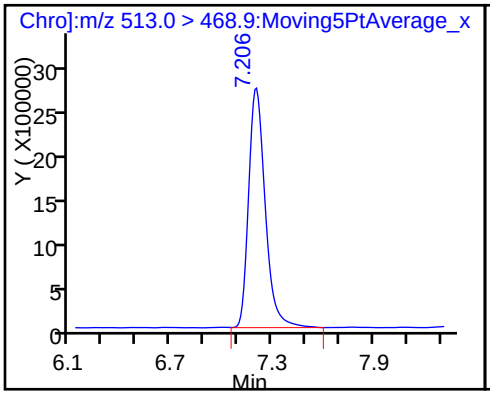
20 Perfluorononanoic acid



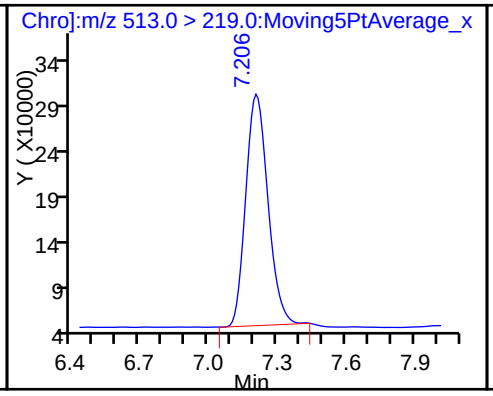
* 22 13C2 PFDA (IS)



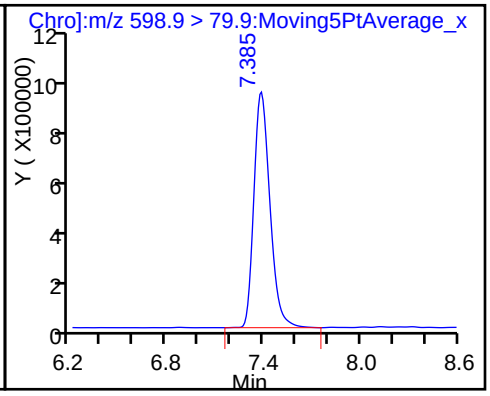
23 Perfluorodecanoic acid



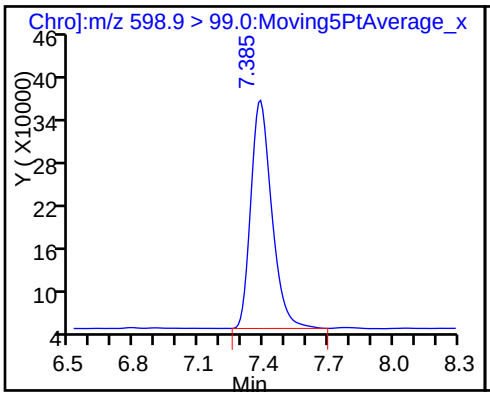
23 Perfluorodecanoic acid



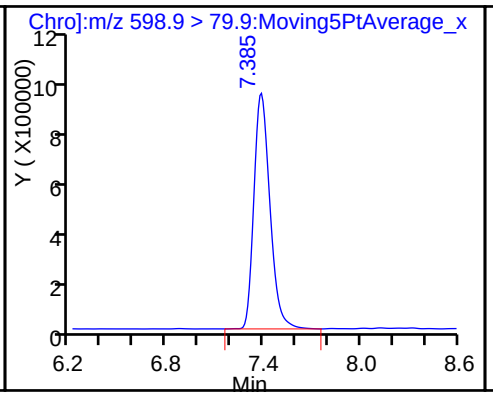
25 Perfluorodecane Sulfonate



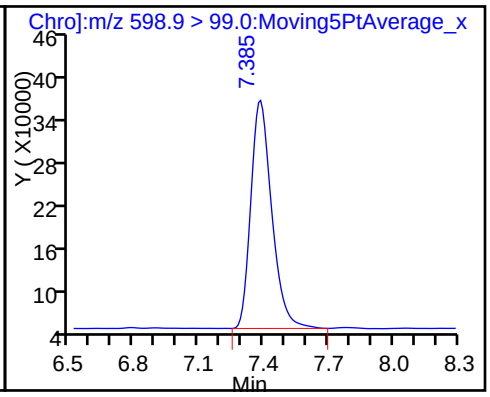
25 Perfluorodecane Sulfonate



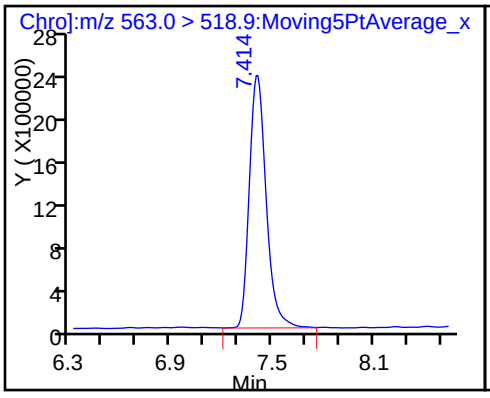
24 Perfluorodecane Sulfonic acid



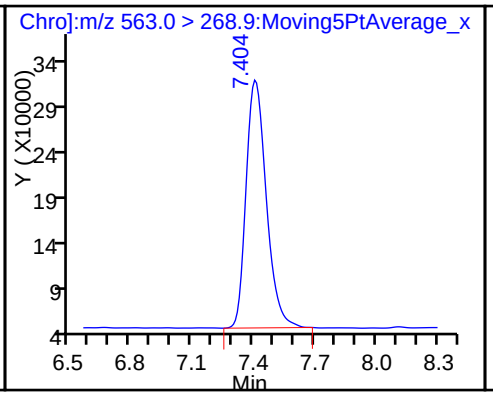
24 Perfluorodecane Sulfonic acid



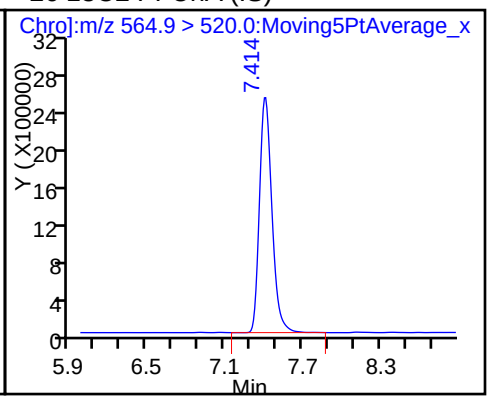
27 Perfluoroundecanoic acid



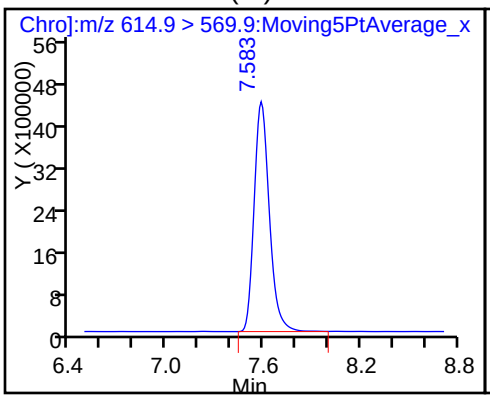
27 Perfluoroundecanoic acid



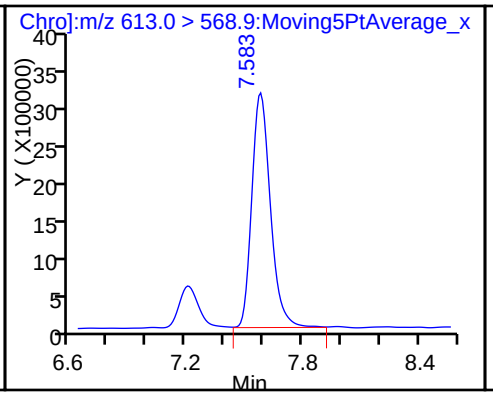
* 26 13C2 PFUnA (IS)



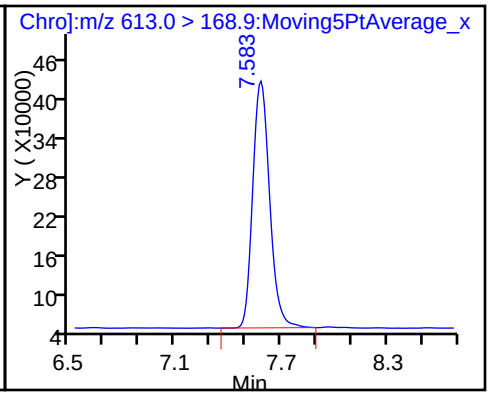
* 28 13C2 PFDoA (IS)



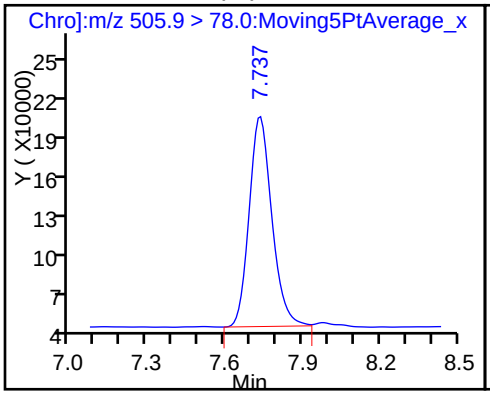
29 Perfluorododecanoic acid



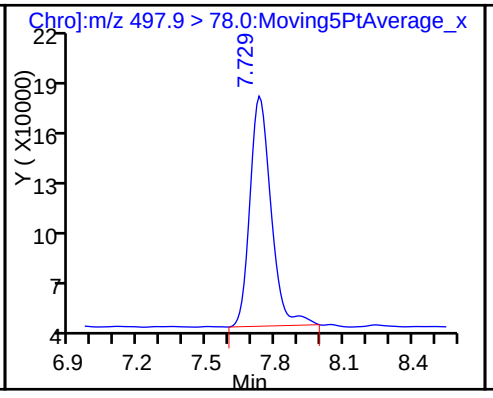
29 Perfluorododecanoic acid



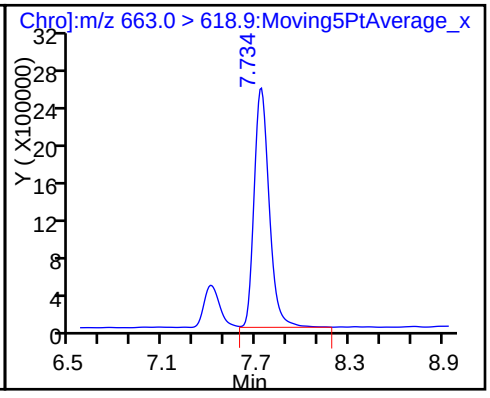
* 31 13C8 FOSA (IS)



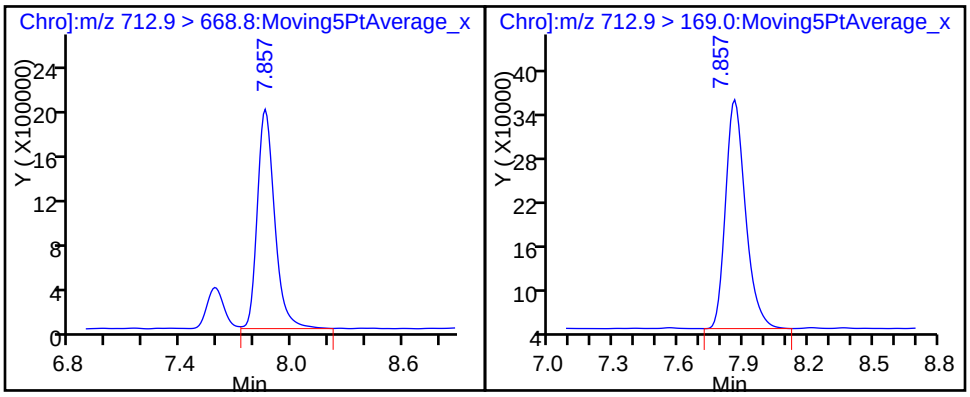
32 Perfluorooctane Sulfonamide



30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: | Lab Sample ID: LCS 280-334942/2-A

Matrix: Water | Lab File ID: PC516G28051.d

Analysis Method: DV-LC-0012 | Date Collected:

Extraction Method: 3535 | Date Extracted: 07/25/2016 10:50

Sample wt/vol: 250(mL) | Date Analyzed: 07/28/2016 18:33

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 335652 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.143		0.020	0.0082
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.171		0.030	0.013
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.174		0.030	0.0070
375-95-1	Perfluorononanoic acid (PFNA)	0.170		0.040	0.017
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.163		0.030	0.013
335-67-1	Perfluorooctanoic acid (PFOA)	0.180		0.020	0.0098

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	102		60-155
STL01054	13C8 PFOS	104		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28051.d
Lims ID: LCS 280-334942/2-A
Client ID:
Sample Type: LCS
Inject. Date: 28-Jul-2016 18:33:31 ALS Bottle#: 0 Worklist Smp#: 7
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: LCS 280-334942/2-A, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 29-Jul-2016 10:36:50 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK010

First Level Reviewer: meyera Date: 29-Jul-2016 09:41:48

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	3.935	4.067	-0.132		21200539	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	3.944	4.068	-0.124	1.002	18420791	8.10			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.081	5.147	-0.066	0.897	17510795	8.95			
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.203	5.260	-0.057	0.851	8210481	7.15			
298.9 > 98.9	5.203	5.260	-0.057	0.851	2523203		3.25(1.80-3.35)		
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.203	5.260	-0.057	0.851	8210481	7.15			
298.9 > 98.9	5.203	5.260	-0.057	0.851	2523203		3.25(2.57-2.57)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.667	5.724	-0.057		16635768	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.667	5.724	-0.057	1.000	12884318	8.19			
313.0 > 118.6	5.667	5.724	-0.057	1.000	331258		38.90(34.05-63.23)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.102	6.159	-0.057	0.944	18166799	8.53			
363.0 > 168.9	6.102	6.159	-0.057	0.944	4768538		3.81(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.111	6.168	-0.057		2081157	9.46			
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.111	6.168	-0.057	1.000	7415091	8.70			
398.9 > 98.9	6.111	6.168	-0.057	1.000	2303963		3.22(1.85-1.85)		
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.111	6.168	-0.057	1.000	7415091	8.70			R
398.9 > 98.9	6.111	6.168	-0.057	1.000	2303963		3.22(1.30-2.41)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.451	6.498	-0.047	0.958	8901750	8.87			
449.0 > 98.9	6.451	6.498	-0.047	0.958	2803861		3.17(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.451	6.498	-0.047	0.958	8901750	8.87			
449.0 > 98.9	6.451	6.498	-0.047	0.958	2803861		3.17(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.451	6.508	-0.057	0.998	19759172	9.99			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.461	6.508	-0.047		24469625	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.452	6.508	-0.056	0.999	23016676	9.02			
413.0 > 169.0	6.461	6.508	-0.047	1.000	7307976		3.15(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.733	6.780	-0.047	1.000	4886132	9.65			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.733	6.781	-0.048		7919278	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.734	6.781	-0.047	1.000	7916234	8.14			R
498.9 > 98.9	6.734	6.781	-0.047	1.000	3193118		2.48(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.753	6.801	-0.047		20064487	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.744	6.801	-0.057	0.999	19116831	8.49			
463.0 > 218.9	6.744	6.801	-0.057	0.999	2708819		7.06(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	6.997	7.045	-0.048		20259030	10.0			
23 Perfluorodecanoic acid									R
513.0 > 468.9	6.998	7.045	-0.047	1.000	18150178	8.89			R
513.0 > 219.0	6.998	7.045	-0.047	1.000	1768806		10.26(10.49-19.48)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.186	7.233	-0.047	1.067	5955357	5.80			
598.9 > 99.0	7.186	7.233	-0.047	1.067	1866481		3.19(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.186	7.233	-0.047	1.067	5955357	5.80			
598.9 > 99.0	7.186	7.233	-0.047	1.067	1866481		3.19(2.84-2.84)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.205	7.262	-0.057		12148113	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.205	7.262	-0.057	1.000	15377281	8.93			R
563.0 > 268.9	7.205	7.262	-0.057	1.000	1947322		7.90(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.384	7.441	-0.057		17821534	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.394	7.441	-0.047	1.001	16678914	9.10			
613.0 > 168.9	7.394	7.441	-0.047	1.001	2081449		8.01(5.96-11.06)		
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.535	7.602	-0.067	1.020	9870931	5.92			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.529	7.557	-0.028		721050	10.0			
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.530	7.558	-0.028	1.000	760116	9.71			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.677	7.734	-0.057	1.040	6472063	6.14			
712.9 > 169.0	7.677	7.734	-0.057	1.040	951563		6.80(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

s - Failed ISTD Recovery Test

Report Date: 29-Jul-2016 10:37:04 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28051.d

Injection Date: 28-Jul-2016 18:33:31 Instrument ID: LC_LCMS5

Lims ID: LCS 280-334942/2-A

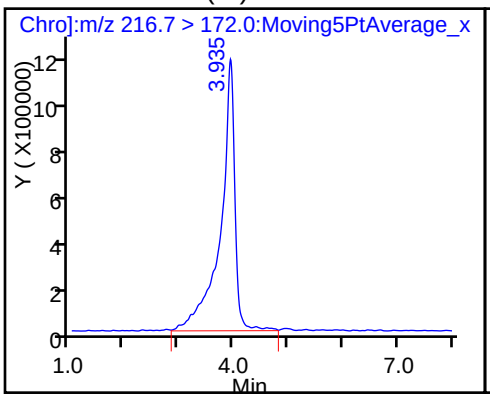
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 7

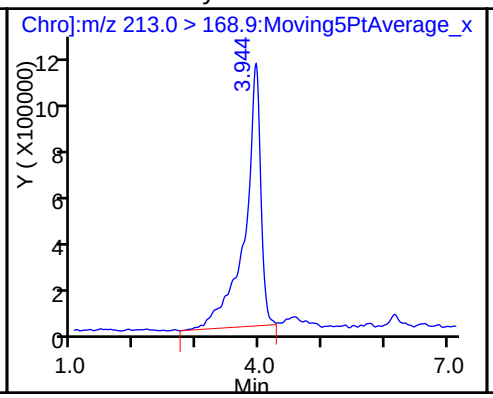
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

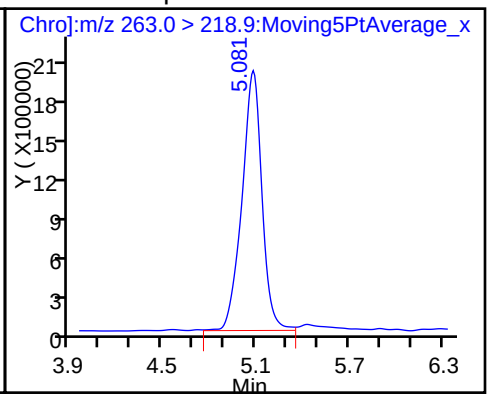
* 1 13C4 PFBA (IS)



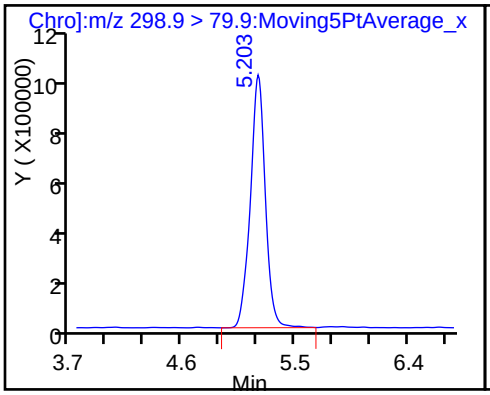
2 Perfluorobutyric acid



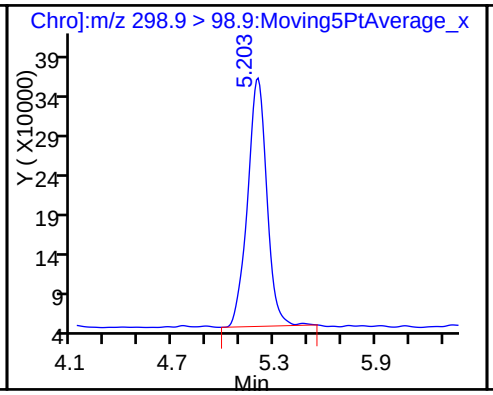
3 Perfluoropentanoic acid



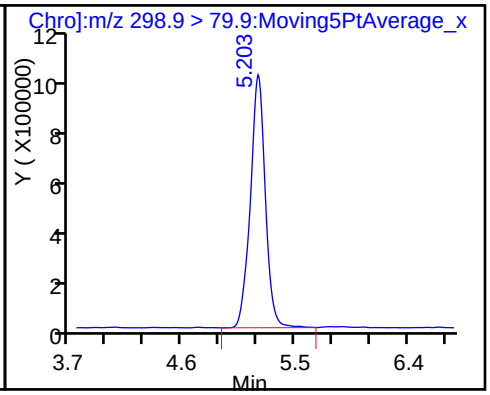
4 Perfluorobutane Sulfonate



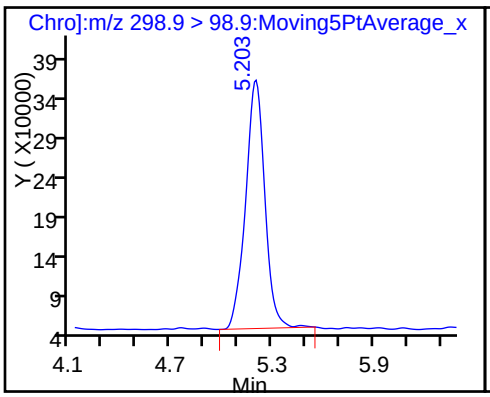
4 Perfluorobutane Sulfonate



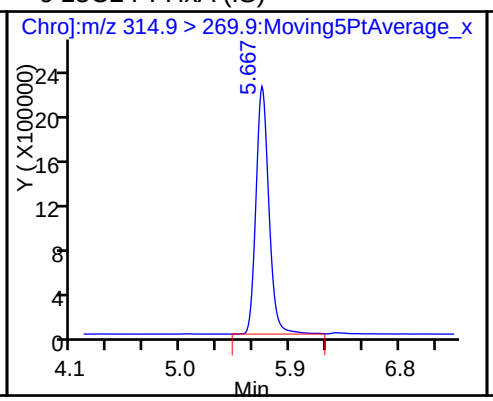
5 Perfluorobutanesulfonic acid



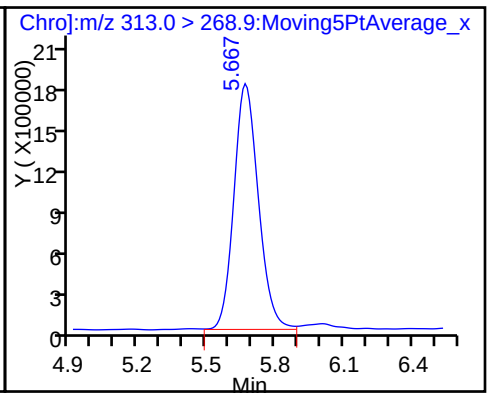
5 Perfluorobutanesulfonic acid



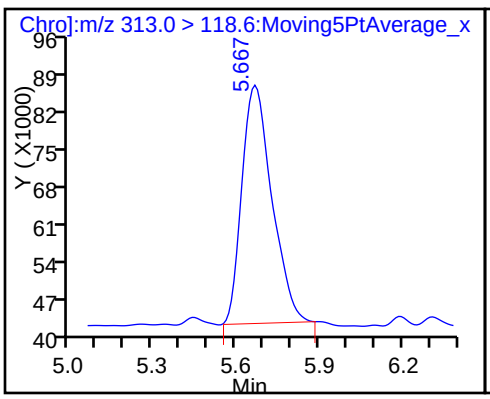
* 6 13C2 PFHxA (IS)



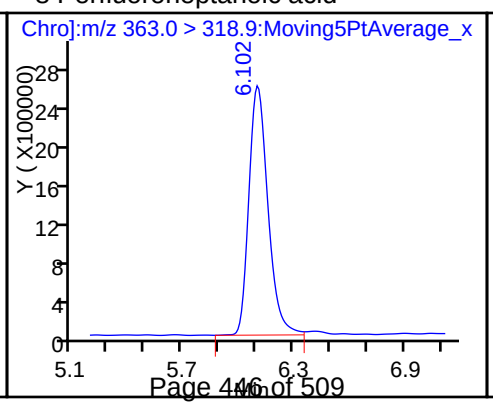
7 Perfluorohexanoic acid



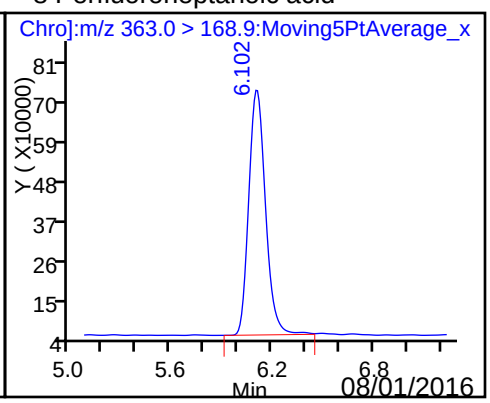
7 Perfluorohexanoic acid



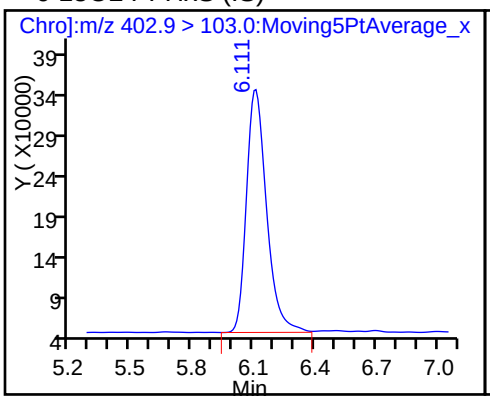
8 Perfluoroheptanoic acid



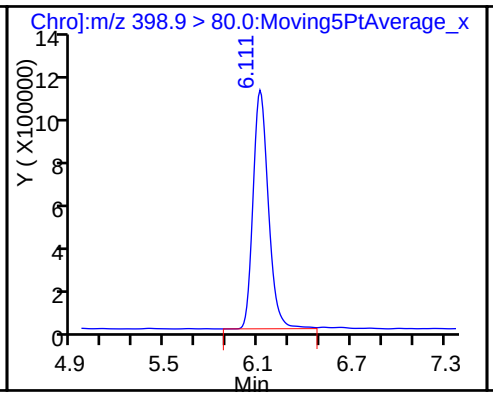
8 Perfluoroheptanoic acid



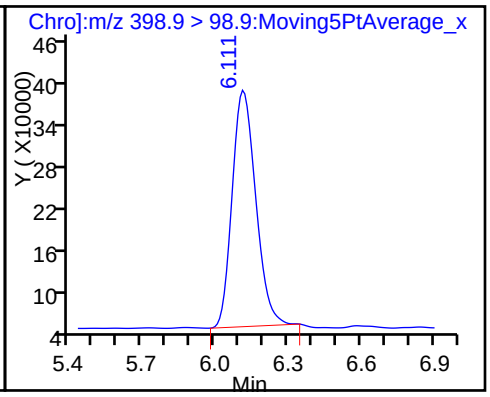
* 9 18O2 PFHxS (IS)



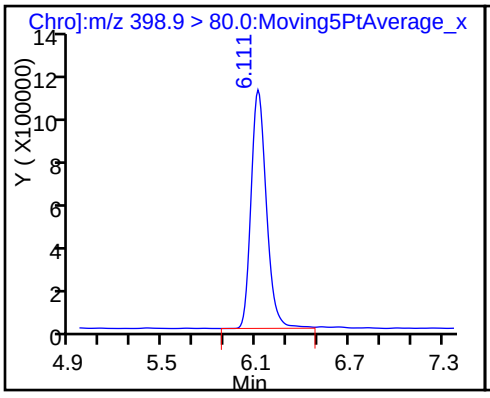
11 Perfluorohexanesulfonic acid



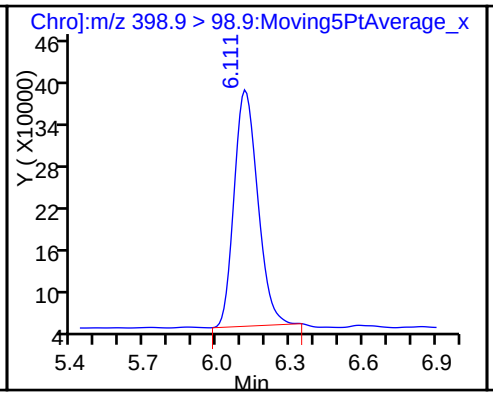
11 Perfluorohexanesulfonic acid



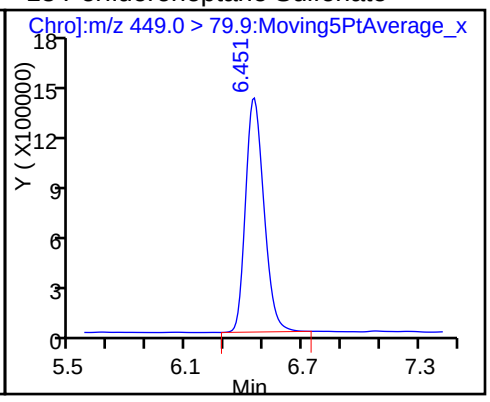
10 Perfluorohexane Sulfonate



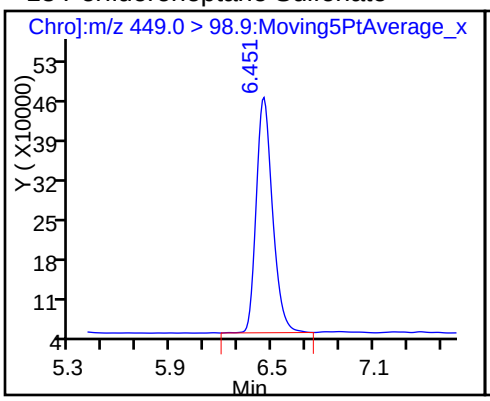
10 Perfluorohexane Sulfonate



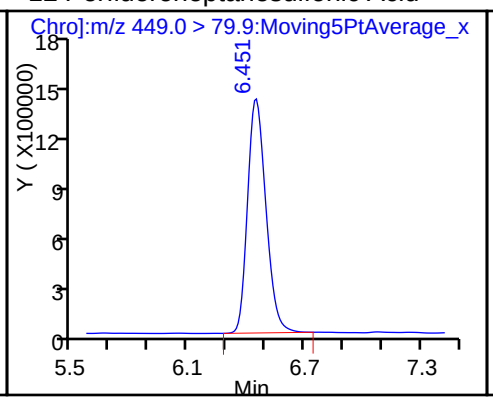
13 Perfluoroheptane Sulfonate



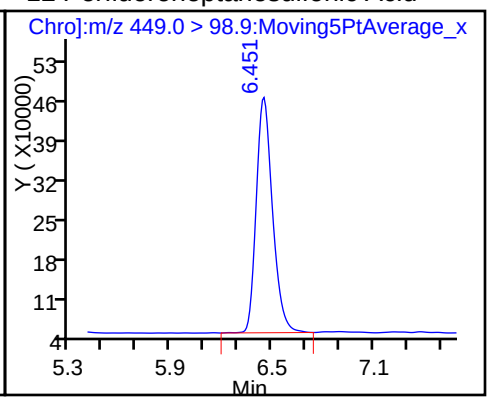
13 Perfluoroheptane Sulfonate



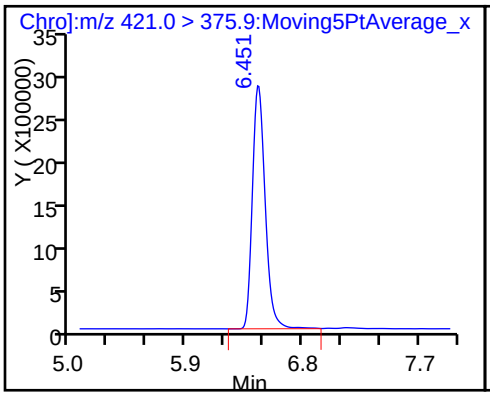
12 Perfluoroheptanesulfonic Acid



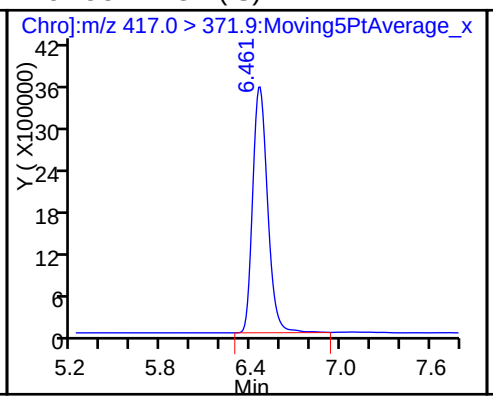
12 Perfluoroheptanesulfonic Acid



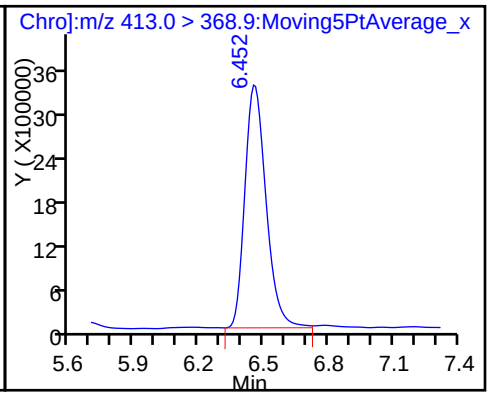
$ 14 13C8 PFOA



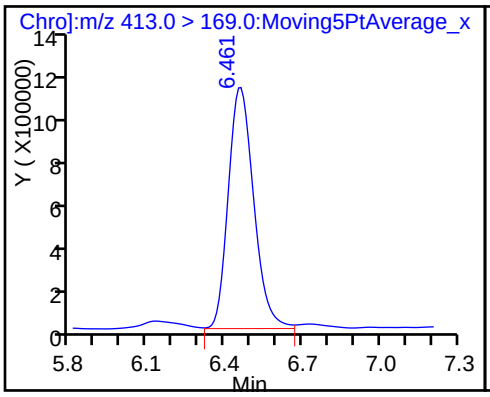
* 15 13C4 PFOA (IS)



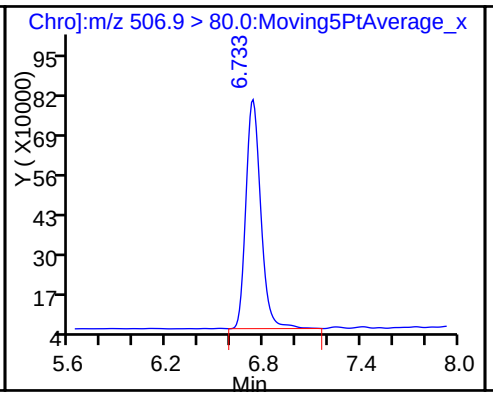
16 Perfluorooctanoic acid



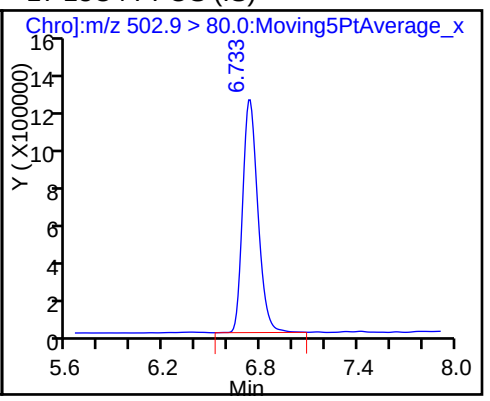
16 Perfluorooctanoic acid



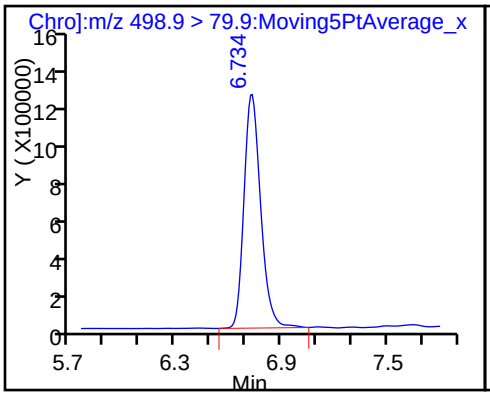
$ 18 13C8 PFOS



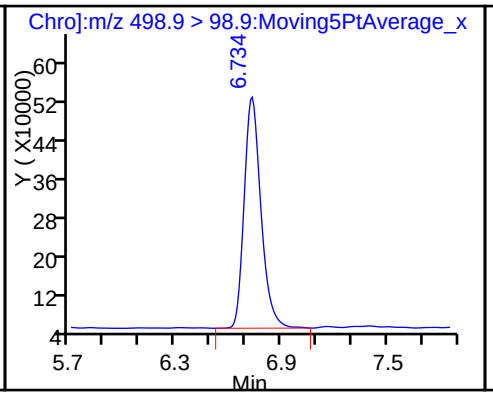
* 17 13C4 PFOS (IS)



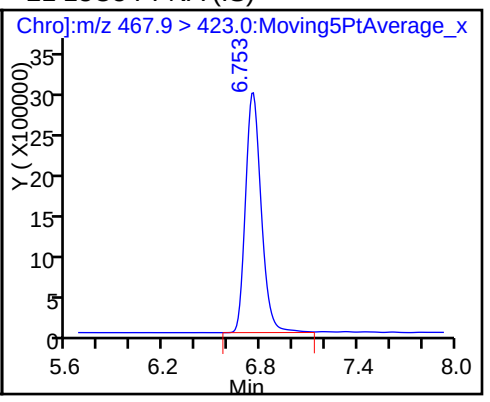
19 Perfluorooctane sulfonic acid



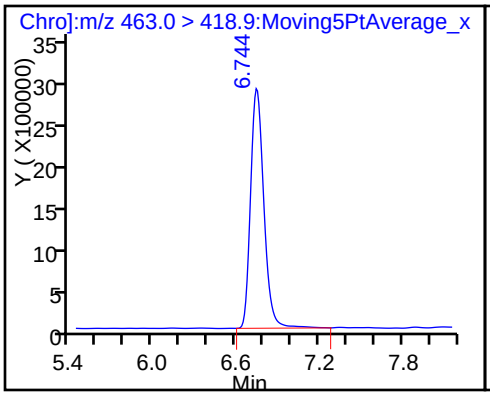
19 Perfluorooctane sulfonic acid



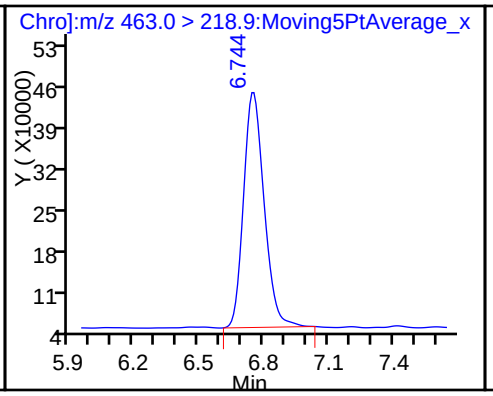
* 21 13C5 PFNA (IS)



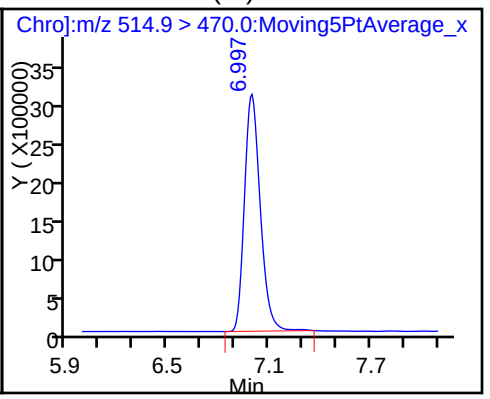
20 Perfluorononanoic acid



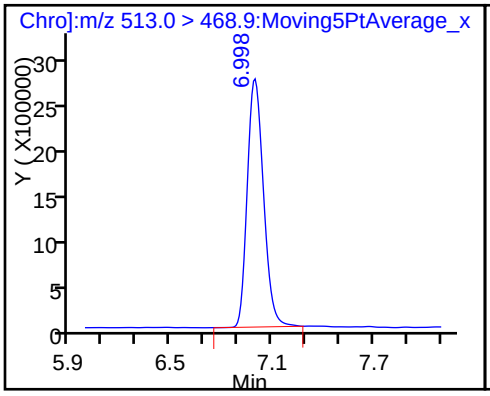
20 Perfluorononanoic acid



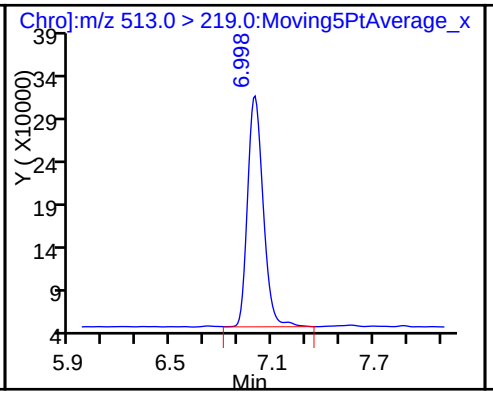
* 22 13C2 PFDA (IS)



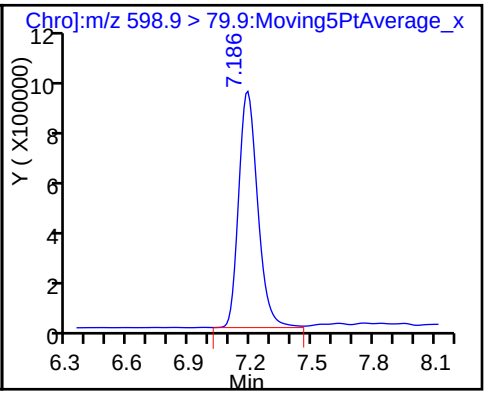
23 Perfluorodecanoic acid



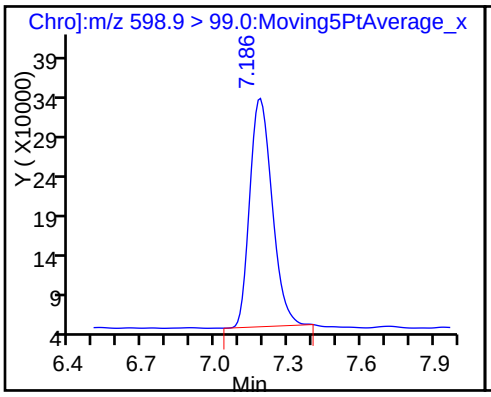
23 Perfluorodecanoic acid



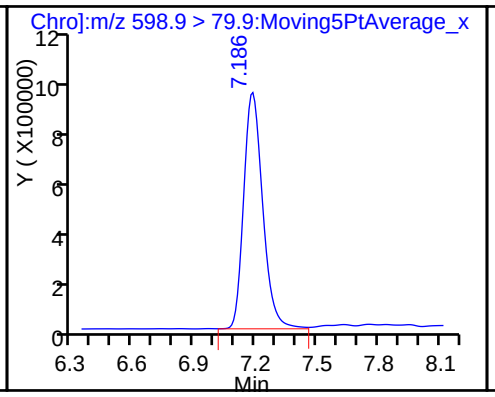
25 Perfluorodecane Sulfonate



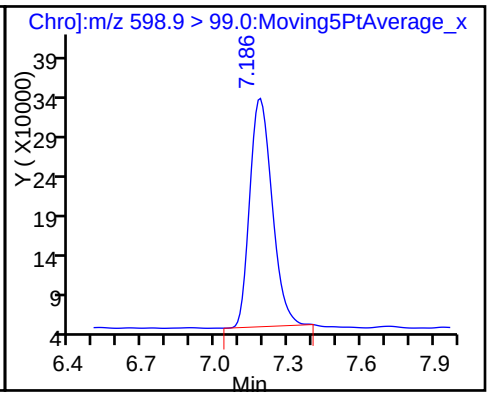
25 Perfluorodecane Sulfonate



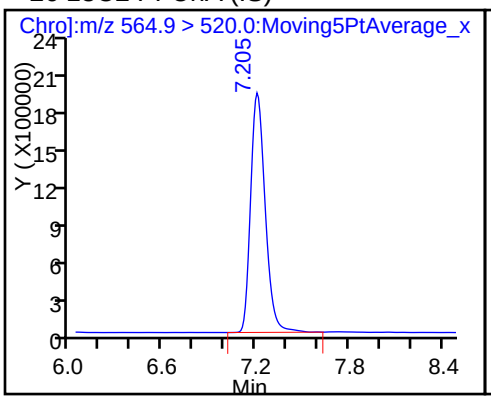
24 Perfluorodecane Sulfonic acid



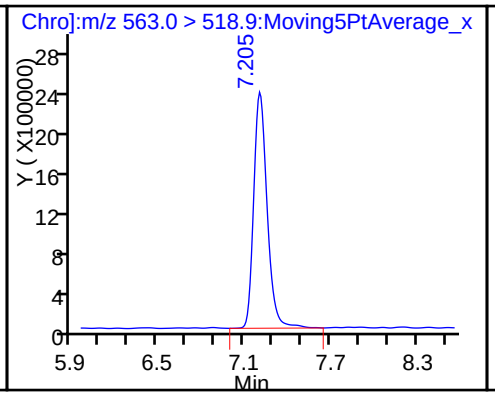
24 Perfluorodecane Sulfonic acid



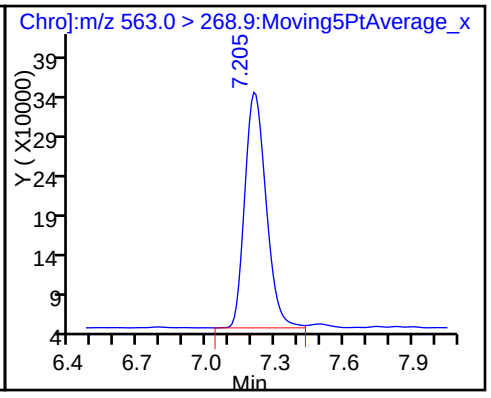
* 26 13C2 PFUnA (IS)



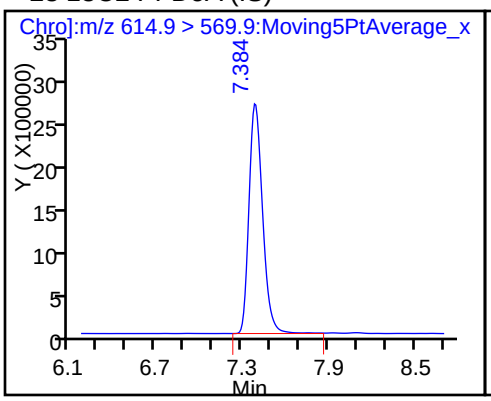
27 Perfluoroundecanoic acid



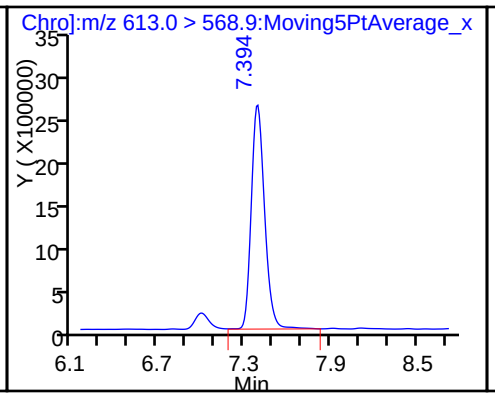
27 Perfluoroundecanoic acid



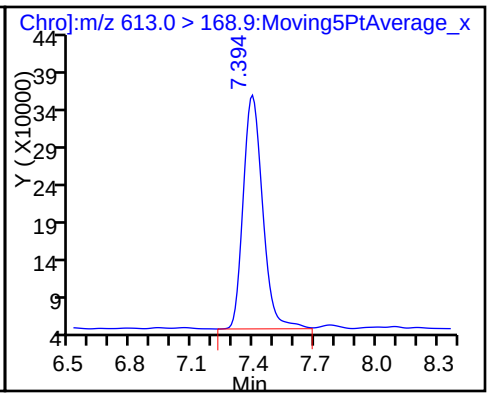
* 28 13C2 PFDoA (IS)



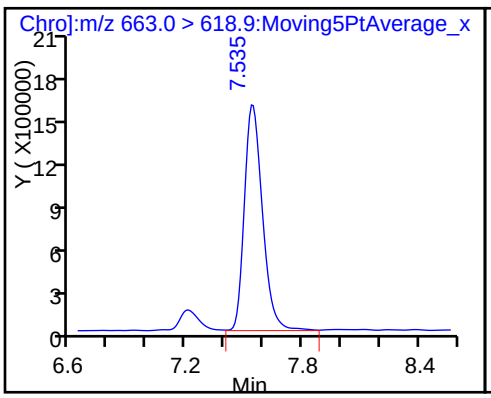
29 Perfluorododecanoic acid



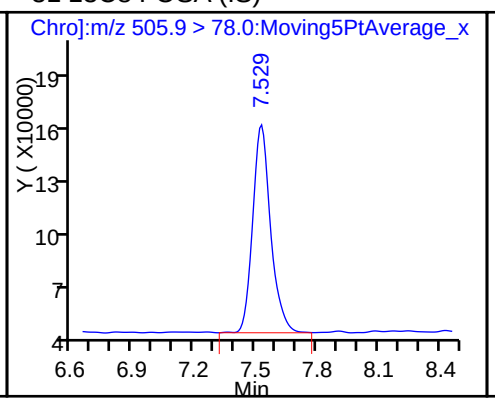
29 Perfluorododecanoic acid



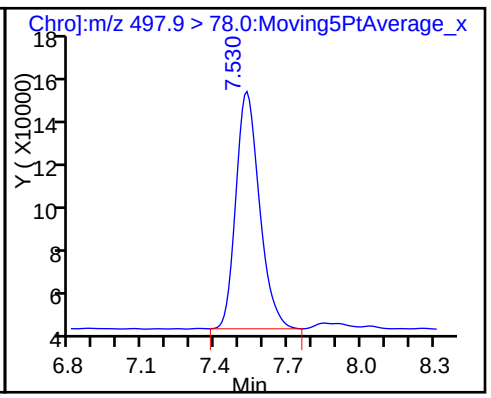
30 Perfluorotridecanoic acid



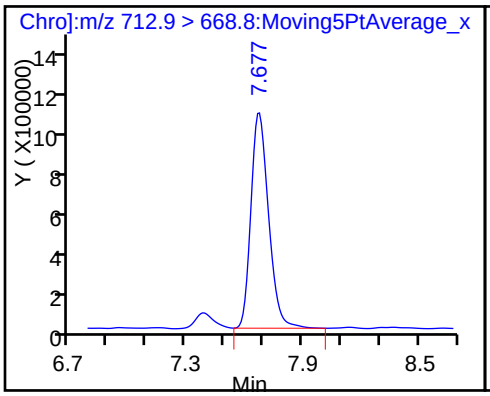
* 31 13C8 FOSA (IS)



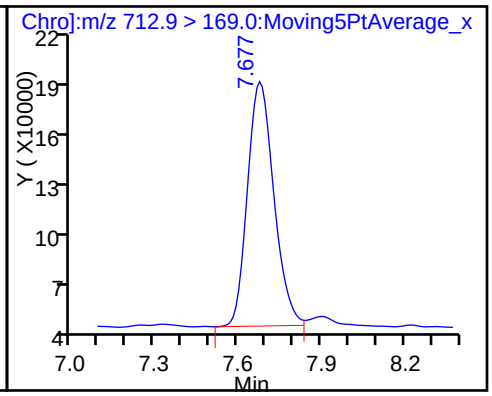
32 Perfluorooctane Sulfonamide



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: | Lab Sample ID: DLCK 280-328740/14

Matrix: Water | Lab File ID: PC516F06019.d

Analysis Method: DV-LC-0012 | Date Collected:

Extraction Method: | Date Extracted:

Sample wt/vol: 1(mL) | Date Analyzed: 06/06/2016 17:05

Con. Extract Vol.: | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 328740 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.419		0.35	0.10
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.433		0.35	0.10
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.446		0.35	0.10
375-95-1	Perfluorononanoic acid (PFNA)	0.439		0.35	0.10
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.456		0.35	0.10
335-67-1	Perfluorooctanoic acid (PFOA)	0.459		0.35	0.10

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	105		60-155
STL01054	13C8 PFOS	106		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06019.d
Lims ID: DLCK L2
Client ID:
Sample Type: QC
Inject. Date: 06-Jun-2016 17:05:17 ALS Bottle#: 0 Worklist Smp#: 14
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: DLCK L2, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 07-Jun-2016 14:09:37 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK003

First Level Reviewer: meyera Date: 07-Jun-2016 13:03:09

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.200	4.465	-0.265		20323348	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	3.850	4.465	-0.615	0.917	1113178	0.5139			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.299	5.336	-0.037	0.899	1426107	0.4894			
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.431	5.440	-0.009	0.862	594584	0.4193			
298.9 > 98.9	5.431	5.440	-0.009	0.862	180646		3.29(2.57-2.57)		
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.431	5.440	-0.009	0.862	594584	0.4193			
298.9 > 98.9	5.431	5.440	-0.009	0.862	180646		3.29(1.80-3.35)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.894	5.885	0.009		23600887	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.894	5.885	0.009	1.000	1181623	0.5087			
313.0 > 118.6	5.894	5.885	0.009	1.000	34359		34.39(34.05-63.23)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.301	6.292	0.009	0.952	1398910	0.4329			
363.0 > 168.9	6.292	6.292	0.0	0.950	395878		3.53(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.300	6.300	0.0		2616206	9.46			
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.301	6.291	0.010	1.000	564647	0.4464			R
398.9 > 98.9	6.301	6.291	0.010	1.000	164216		3.44(1.30-2.41)		
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.301	6.291	0.010	1.000	564647	0.4464			
398.9 > 98.9	6.301	6.291	0.010	1.000	164216		3.44(1.85-1.85)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
12 Perfluoroheptanesulfonic Acid									7
449.0 > 79.9	6.602	6.621	-0.019	0.960	542028	0.4617			7
449.0 > 98.9	6.612	6.621	-0.009	0.962	184723		2.93(0.00-0.00)		
LOD = 0.4950									
13 Perfluoroheptane Sulfonate									7
449.0 > 79.9	6.602	6.621	-0.019	0.960	542028	0.4617			7
449.0 > 98.9	6.612	6.621	-0.009	0.962	184723		2.93(0.00-0.00)		
LOD = 0.4950									
$ 14 13C8 PFOA									
421.0 > 375.9	6.612	6.631	-0.019	0.999	1593505	0.5225			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.622	6.631	-0.009		34601296	10.0			
16 Perfluorooctanoic acid									R
413.0 > 368.9	6.622	6.632	-0.010	1.000	1900951	0.4594			R
413.0 > 169.0	6.613	6.632	-0.019	0.999	678793		2.80(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.875	6.894	-0.019	1.000	325922	0.5081			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.875	6.904	-0.029		9456457	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.876	6.895	-0.019	1.000	607496	0.4558			R
498.9 > 98.9	6.876	6.895	-0.019	1.000	150123		4.05(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.895	6.914	-0.019		27571989	10.0			
20 Perfluorononanoic acid									R
463.0 > 418.9	6.895	6.924	-0.029	1.000	1486714	0.4391			R
463.0 > 218.9	6.905	6.924	-0.019	1.001	299965		4.96(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.130	7.158	-0.028		28251355	10.0			
23 Perfluorodecanoic acid									
513.0 > 468.9	7.130	7.159	-0.029	1.000	1495646	0.4925			
513.0 > 219.0	7.121	7.159	-0.038	0.999	132217		11.31(10.49-19.48)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.309	7.337	-0.028	1.063	616888	0.4672			
598.9 > 99.0	7.318	7.337	-0.019	1.064	183519		3.36(2.84-2.84)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.309	7.337	-0.028	1.063	616888	0.4672			
598.9 > 99.0	7.318	7.337	-0.019	1.064	183519		3.36(1.99-3.69)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.338	7.366	-0.028		17474457	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.338	7.366	-0.028	1.000	1500233	0.5558			R
563.0 > 268.9	7.329	7.366	-0.038	0.999	174090		8.62(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.507	7.545	-0.038		35228011	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.507	7.545	-0.038	1.000	1831822	0.4508			
613.0 > 168.9	7.517	7.545	-0.028	1.001	218636		8.38(5.96-11.06)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 31 13C8 FOSA (IS)									
505.9 > 78.0	7.605	7.642	-0.037		27255655	10.0			
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.605	7.643	-0.038	1.000	1552508	0.5157			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.658	7.696	-0.038	1.020	1763710	0.4613			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.791	7.829	-0.038	1.038	1138690	0.5403			
712.9 > 169.0	7.791	7.829	-0.038	1.038	261736		4.35(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

7 - Failed Limit of Detection

Reagents:

PFC_CAL_stock_00033 Amount Added: 25.00 Units: uL

PFC-IS_00021 Amount Added: 20.00 Units: uL

Report Date: 07-Jun-2016 14:09:45 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06019.d

Injection Date: 06-Jun-2016 17:05:17 Instrument ID: LC_LCMS5

Lims ID: DLCK L2

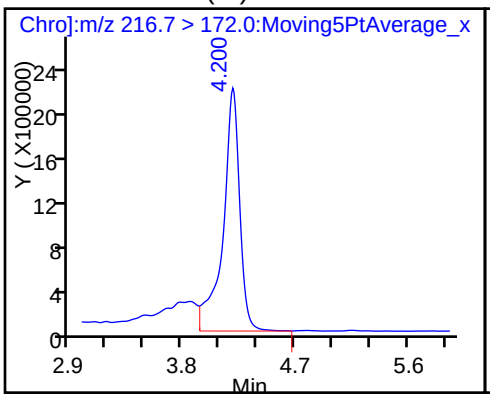
Client ID:

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 14

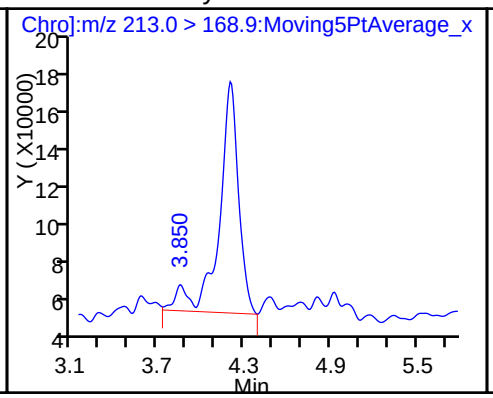
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

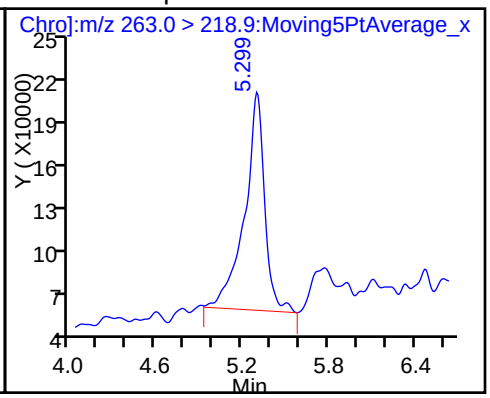
* 1 13C4 PFBA (IS)



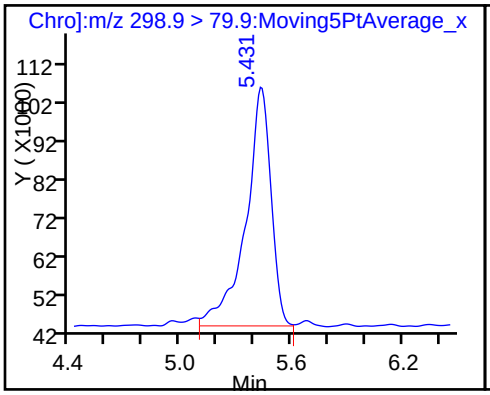
2 Perfluorobutyric acid



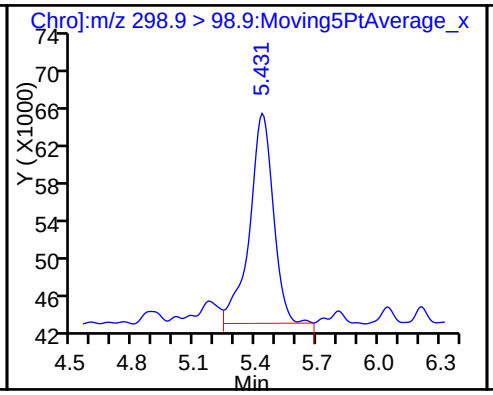
3 Perfluoropentanoic acid



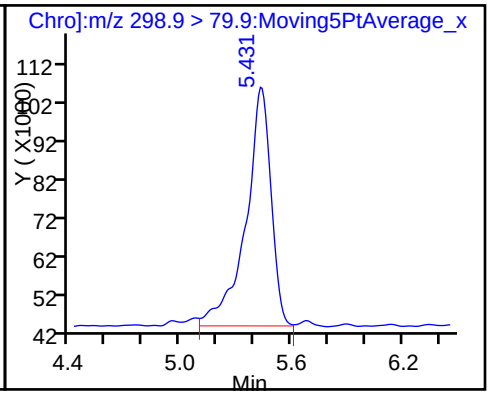
5 Perfluorobutanesulfonic acid



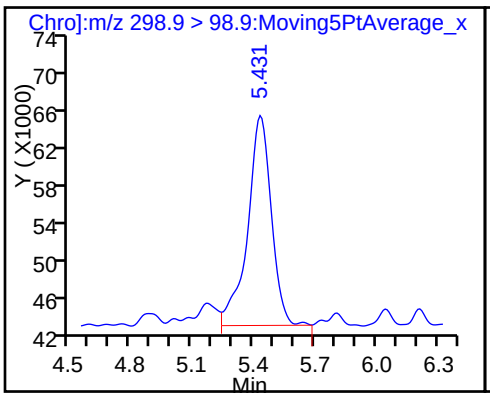
5 Perfluorobutanesulfonic acid



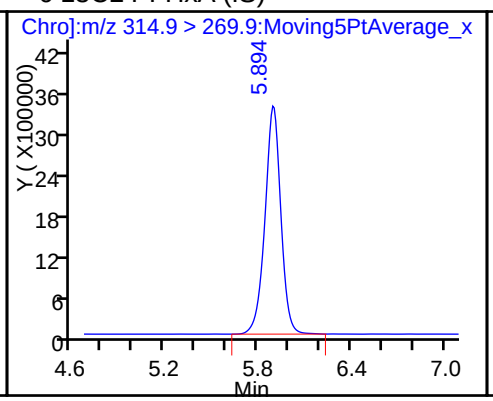
4 Perfluorobutane Sulfonate



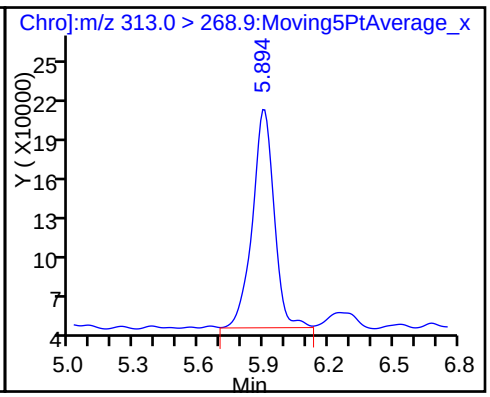
4 Perfluorobutane Sulfonate



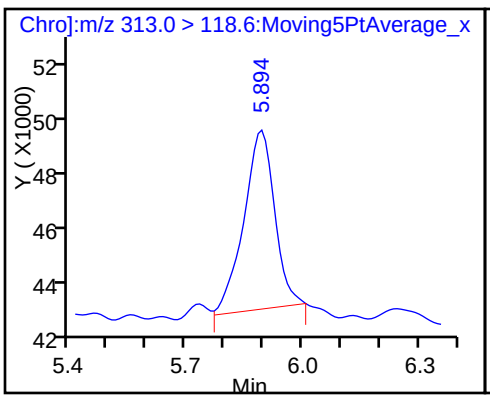
* 6 13C2 PFHxA (IS)



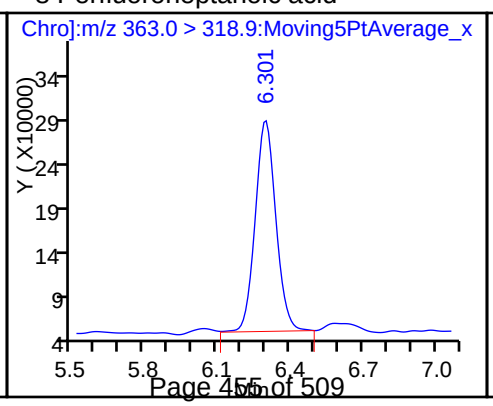
7 Perfluorohexanoic acid



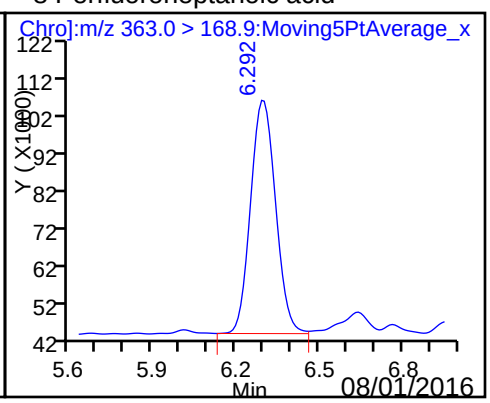
7 Perfluorohexanoic acid



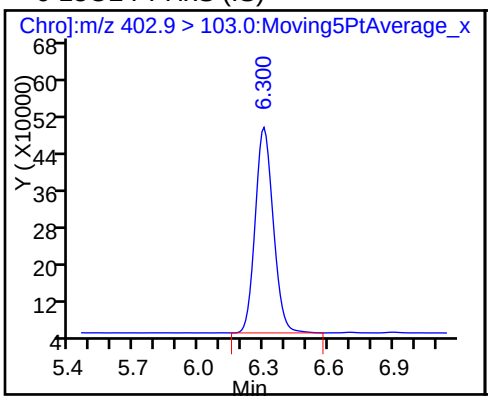
8 Perfluoroheptanoic acid



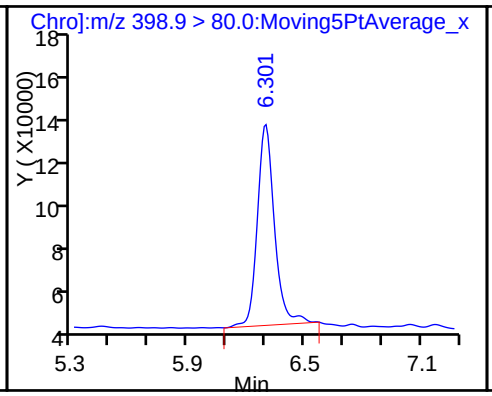
8 Perfluoroheptanoic acid



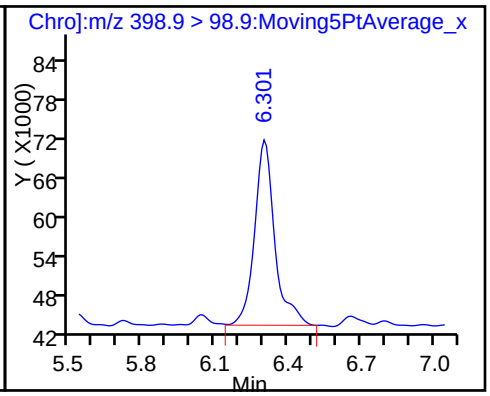
* 9 18O2 PFHxS (IS)



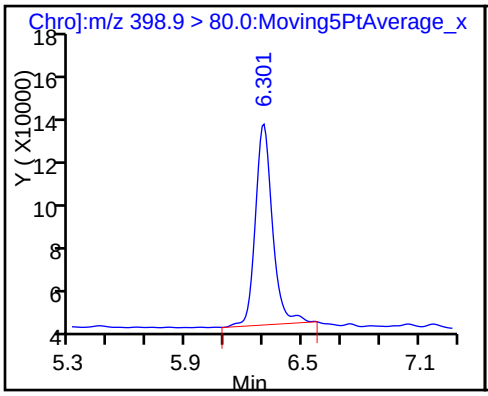
10 Perfluorohexane Sulfonate



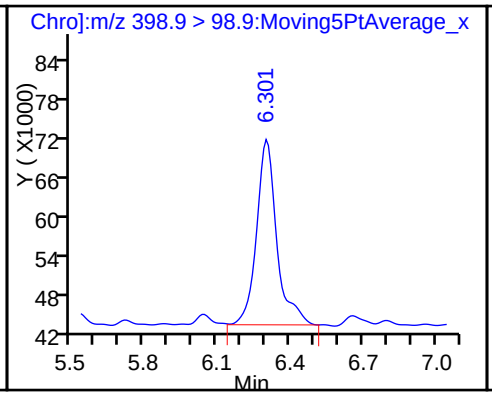
10 Perfluorohexane Sulfonate



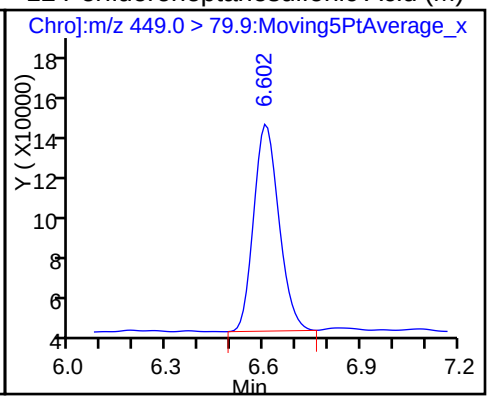
11 Perfluorohexanesulfonic acid



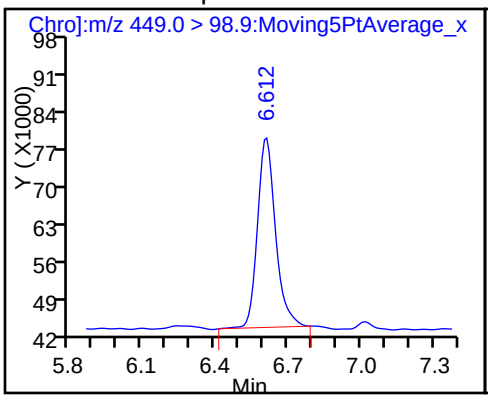
11 Perfluorohexanesulfonic acid



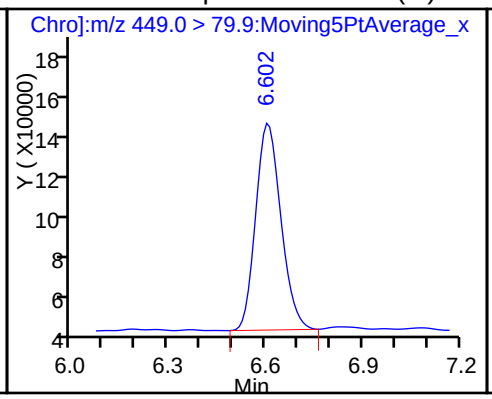
12 Perfluoroheptanesulfonic Acid (M)



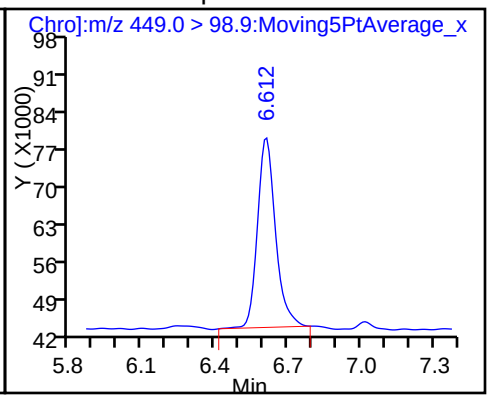
12 Perfluoroheptanesulfonic Acid



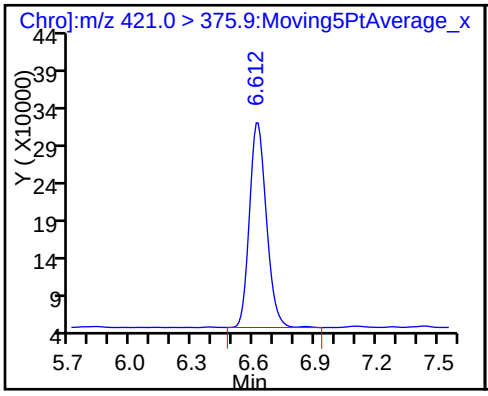
13 Perfluoroheptane Sulfonate (M)



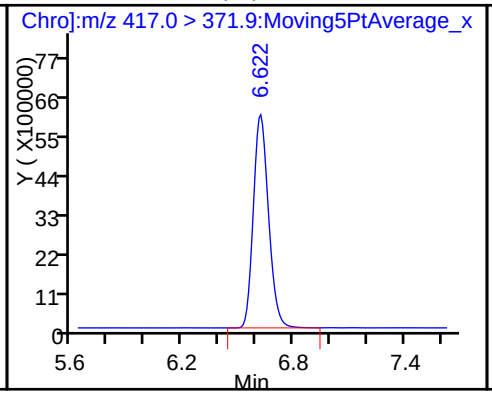
13 Perfluoroheptane Sulfonate



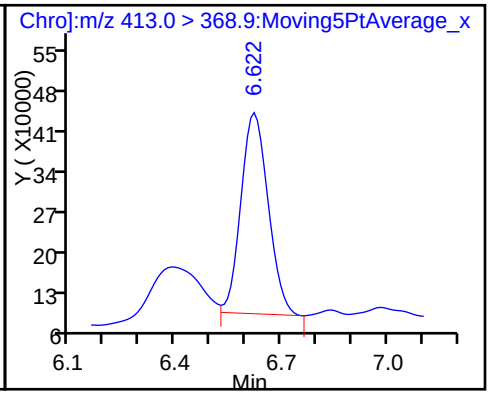
$ 14 13C8 PFOA



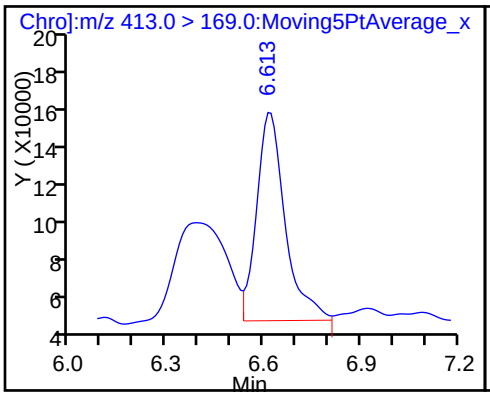
* 15 13C4 PFOA (IS)



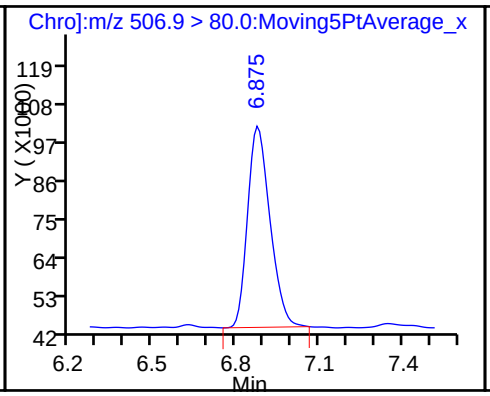
16 Perfluorooctanoic acid



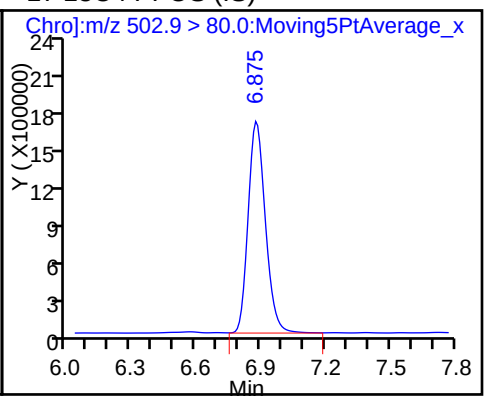
16 Perfluorooctanoic acid



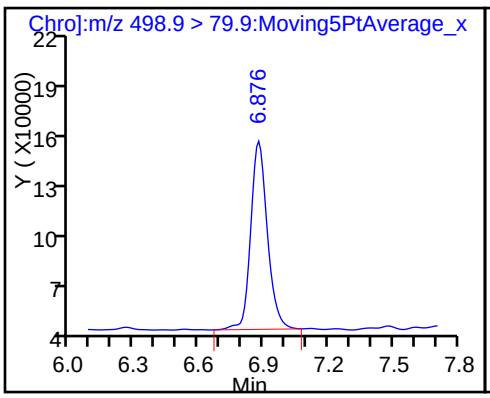
$ 18 13C8 PFOS



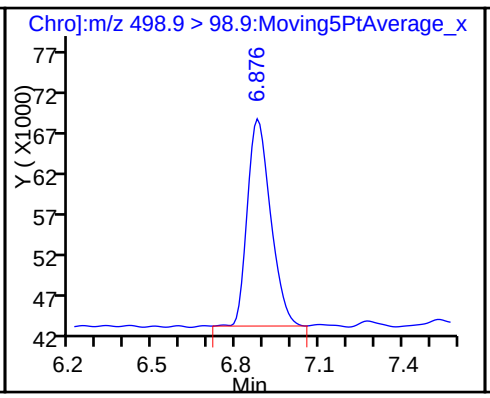
* 17 13C4 PFOS (IS)



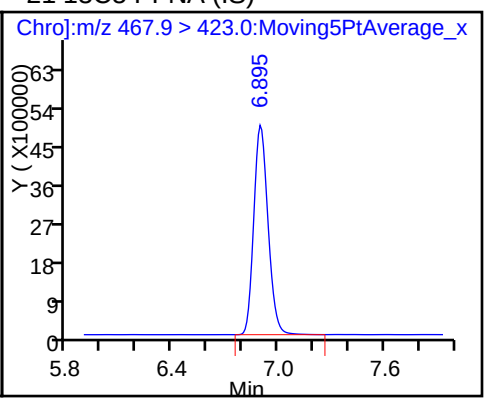
19 Perfluorooctane sulfonic acid



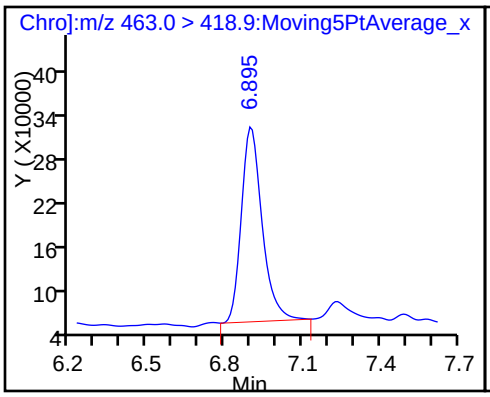
19 Perfluorooctane sulfonic acid



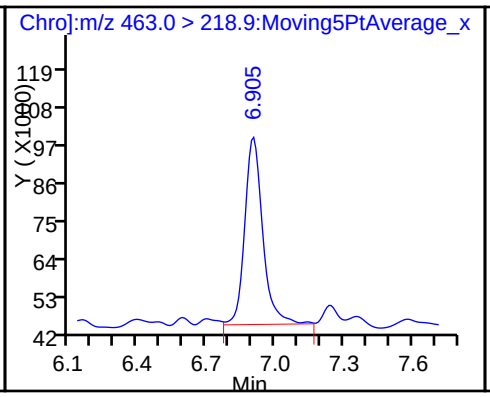
* 21 13C5 PFNA (IS)



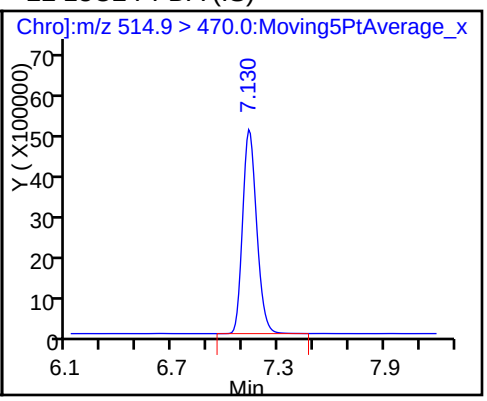
20 Perfluorononanoic acid



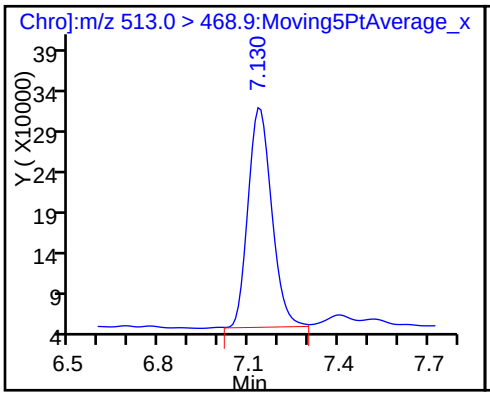
20 Perfluorononanoic acid



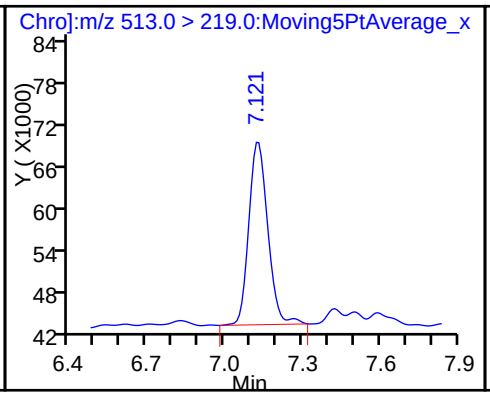
* 22 13C2 PFDA (IS)



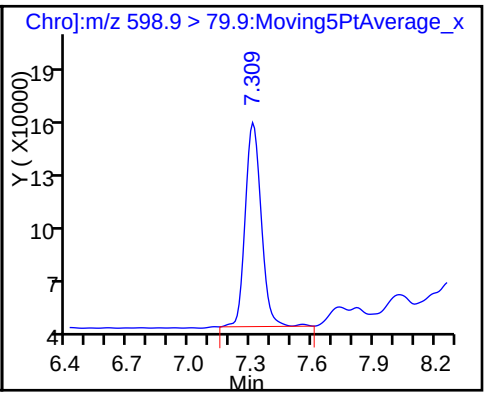
23 Perfluorodecanoic acid



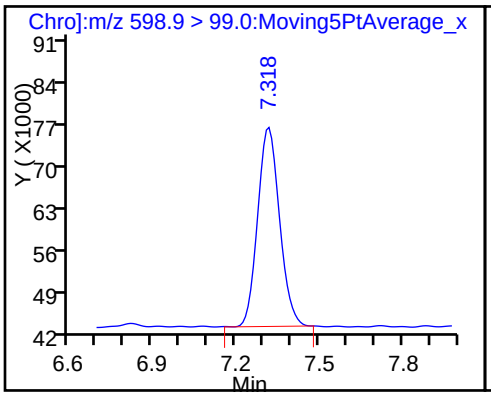
23 Perfluorodecanoic acid



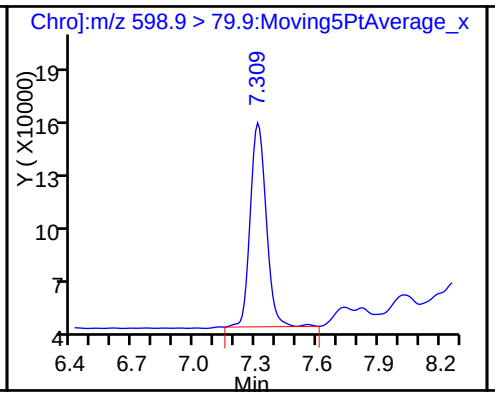
24 Perfluorodecane Sulfonic acid



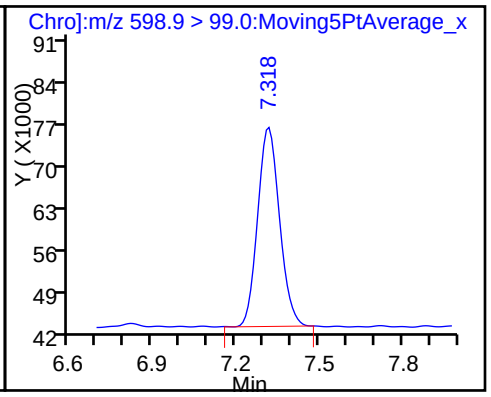
24 Perfluorodecane Sulfonic acid



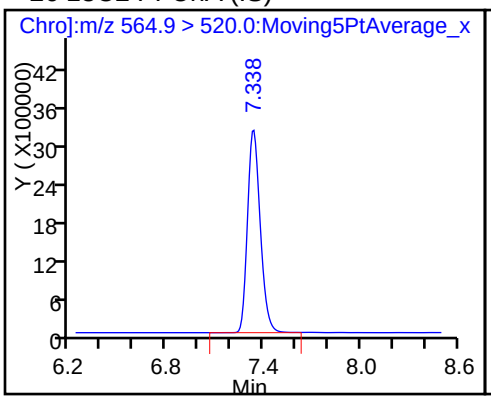
25 Perfluorodecane Sulfonate



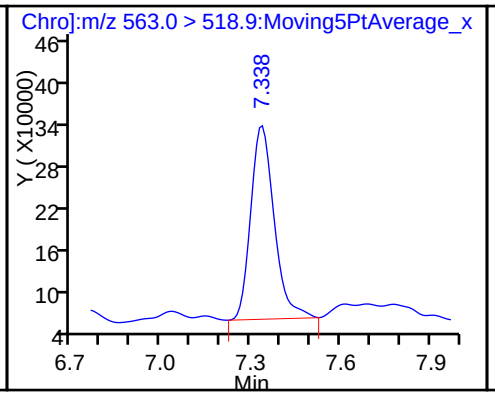
25 Perfluorodecane Sulfonate



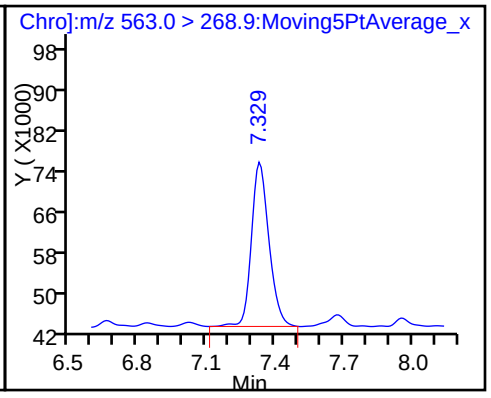
* 26 13C2 PFUnA (IS)



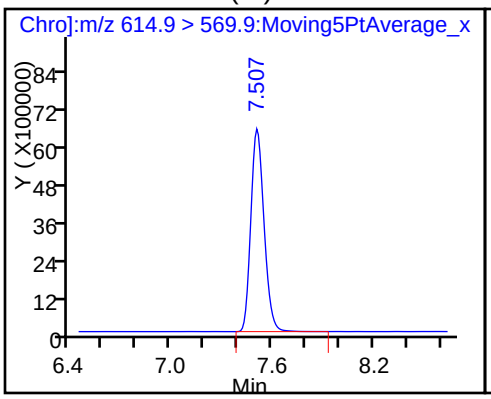
27 Perfluoroundecanoic acid



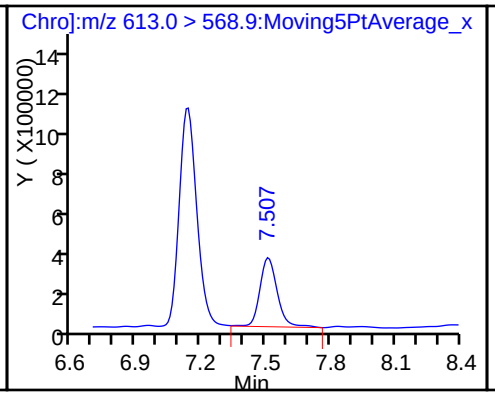
27 Perfluoroundecanoic acid



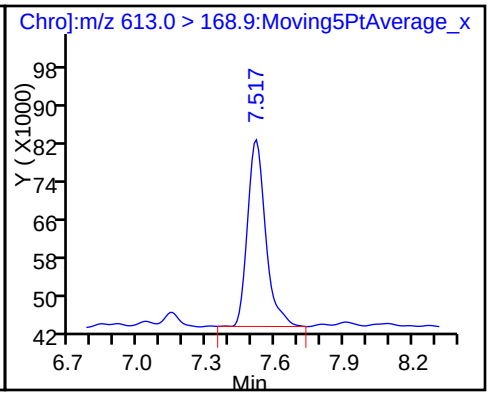
* 28 13C2 PFDoA (IS)



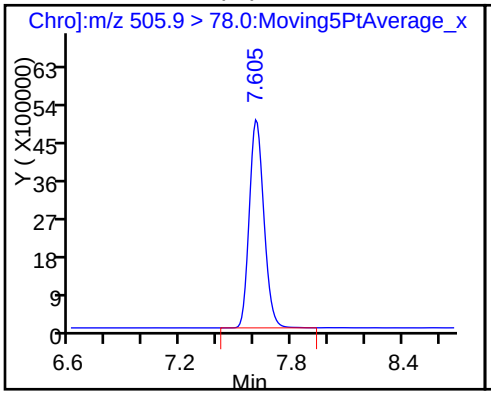
29 Perfluorododecanoic acid



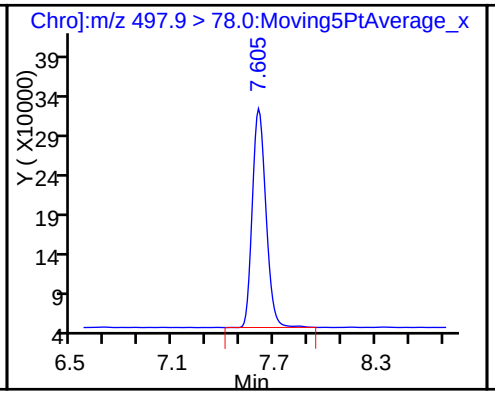
29 Perfluorododecanoic acid



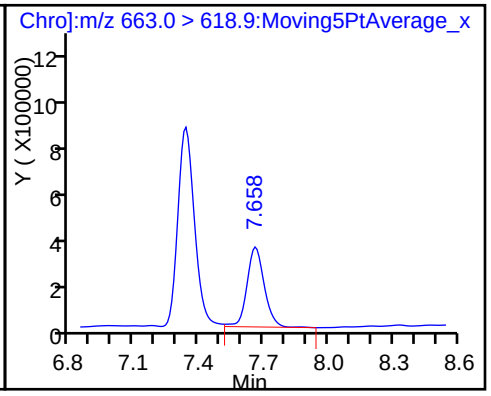
* 31 13C8 FOSA (IS)



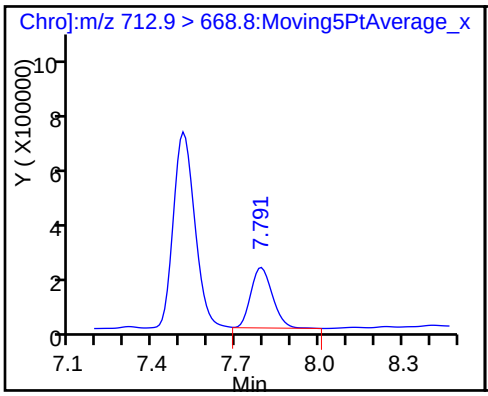
32 Perfluorooctane Sulfonamide



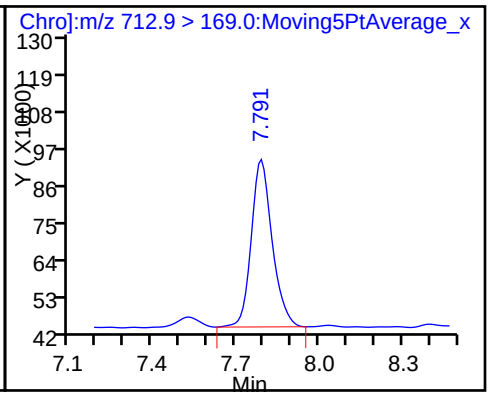
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: SWF-OF-013 MS | Lab Sample ID: 280-85298-1 MS

Matrix: Water | Lab File ID: PC516G18046.d

Analysis Method: DV-LC-0012 | Date Collected: 07/05/2016 11:05

Extraction Method: 3535 | Date Extracted: 07/16/2016 07:25

Sample wt/vol: 250.2(mL) | Date Analyzed: 07/18/2016 21:06

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 334166 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.133		0.020	0.0082
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.181		0.030	0.013
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.336		0.030	0.0070
375-95-1	Perfluorononanoic acid (PFNA)	0.145		0.040	0.017
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.361		0.030	0.013
335-67-1	Perfluorooctanoic acid (PFOA)	0.197		0.020	0.0098

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	101		60-155
STL01054	13C8 PFOS	101		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18046.d
Lims ID: 280-85298-D-1-A MS
Client ID: SWF-OF-013
Sample Type: MS
Inject. Date: 18-Jul-2016 21:06:25 ALS Bottle#: 0 Worklist Smp#: 41
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85298-D-1-A MS, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 19-Jul-2016 15:53:00 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK035

First Level Reviewer: fiedlerh Date: 19-Jul-2016 13:33:36

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.200	4.333	-0.133		29192821	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	4.210	4.333	-0.123	1.002	25625764	8.18			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.270	5.346	-0.076	0.898	24837273	10.1			
4 Perfluorobutane Sulfonate									R
298.9 > 79.9	5.393	5.459	-0.066	0.857	8976886	6.63			R
298.9 > 98.9	5.383	5.459	-0.076	0.856	2669634		3.36(1.80-3.35)		
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.393	5.459	-0.066	0.857	8976886	6.63			
298.9 > 98.9	5.383	5.459	-0.076	0.856	2669634		3.36(2.57-2.57)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.866	5.932	-0.066		20845360	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.866	5.932	-0.066	1.000	26937521	13.7			
313.0 > 118.6	5.866	5.932	-0.066	1.000	733650		36.72(34.05-63.23)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.292	6.358	-0.066	0.949	25289240	9.03			
363.0 > 168.9	6.292	6.358	-0.066	0.949	6504845		3.89(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.291	6.367	-0.076		2452160	9.46			
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.291	6.367	-0.076	1.000	16796256	16.8			
398.9 > 98.9	6.291	6.367	-0.076	1.000	5352634		3.14(1.85-1.85)		
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.291	6.367	-0.076	1.000	16796256	16.8			R
398.9 > 98.9	6.291	6.367	-0.076	1.000	5352634		3.14(1.30-2.41)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.621	6.688	-0.067	0.959	8056147	7.54			
449.0 > 98.9	6.621	6.688	-0.067	0.959	2379827		3.39(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.621	6.688	-0.067	0.959	8056147	7.54			
449.0 > 98.9	6.621	6.688	-0.067	0.959	2379827		3.39(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.631	6.697	-0.066	1.000	26335759	10.1			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.631	6.698	-0.067		32171763	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.632	6.698	-0.066	1.000	33002872	9.85			
413.0 > 169.0	6.632	6.698	-0.066	1.000	10416856		3.17(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.903	6.970	-0.067	1.000	5192771	9.63			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.904	6.970	-0.066		8433274	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.895	6.970	-0.075	0.999	18590167	18.0			R
498.9 > 98.9	6.895	6.970	-0.075	0.999	6318931		2.94(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.924	6.990	-0.066		25016110	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.924	6.990	-0.066	1.000	20344740	7.24			
463.0 > 218.9	6.924	6.990	-0.066	1.000	2993117		6.80(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.158	7.225	-0.067		24389027	10.0			
23 Perfluorodecanoic acid									
513.0 > 468.9	7.159	7.225	-0.066	1.000	8147242	3.29			
513.0 > 219.0	7.225	7.225	0.0	0.000	0		0.00(10.49-19.48)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.337	7.404	-0.067	1.063	5752914	5.25			
598.9 > 99.0	7.347	7.404	-0.057	1.064	1808766		3.18(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.337	7.404	-0.067	1.063	5752914	5.25			
598.9 > 99.0	7.347	7.404	-0.057	1.064	1808766		3.18(2.84-2.84)		
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.366	7.433	-0.067	1.000	14565834	7.04			R
563.0 > 268.9	7.376	7.433	-0.057	1.001	1849789		7.87(3.47-6.45)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.366	7.432	-0.066		14556632	10.0			
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.545	7.602	-0.057		25892478	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.545	7.602	-0.057	1.000	20332749	7.63			
613.0 > 168.9	7.536	7.602	-0.066	0.999	2326759		8.74(5.96-11.06)		
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.699	7.756	-0.057		2100872	10.0			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.691	7.757	-0.066	0.999	1562872	6.85			
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.696	7.753	-0.057	1.020	15380615	6.36			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.819	7.885	-0.066	1.036	11970770	7.82			
712.9 > 169.0	7.819	7.885	-0.066	1.036	1800644		6.65(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

s - Failed ISTD Recovery Test

Report Date: 19-Jul-2016 15:53:33 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18046.d

Injection Date: 18-Jul-2016 21:06:25 Instrument ID: LC_LCMS5

Lims ID: 280-85298-D-1-A MS

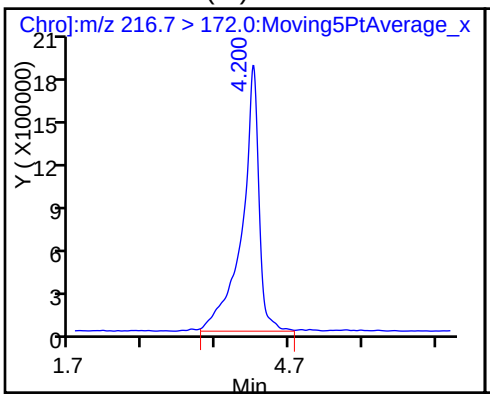
Client ID: SWF-OF-013

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 41

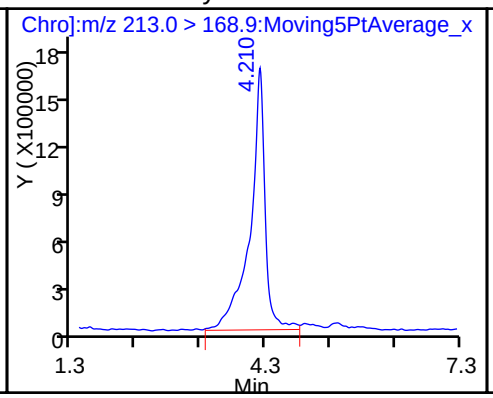
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

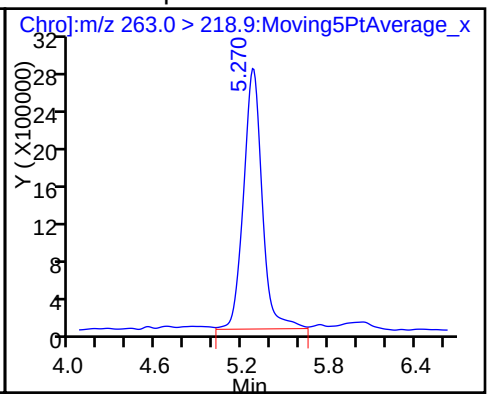
* 1 13C4 PFBA (IS)



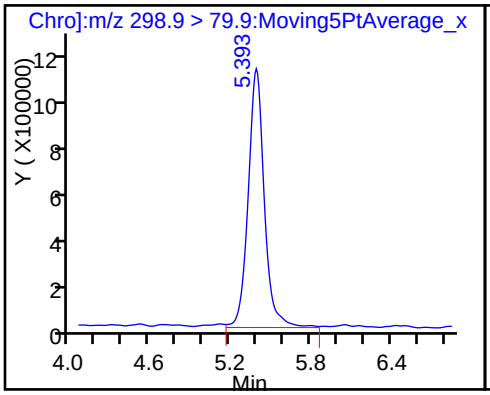
2 Perfluorobutyric acid



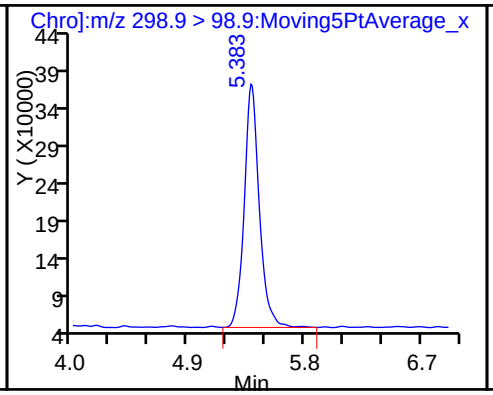
3 Perfluoropentanoic acid



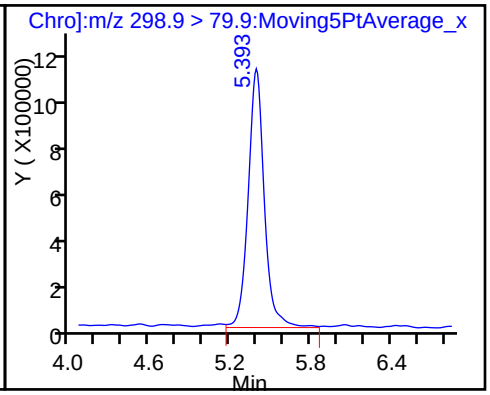
4 Perfluorobutane Sulfonate



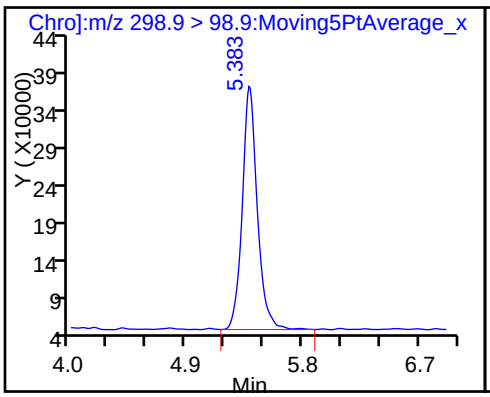
4 Perfluorobutane Sulfonate



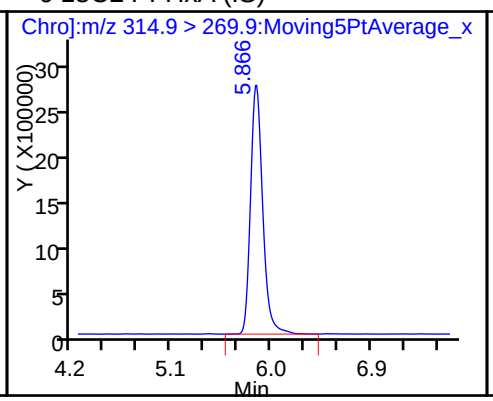
5 Perfluorobutanesulfonic acid



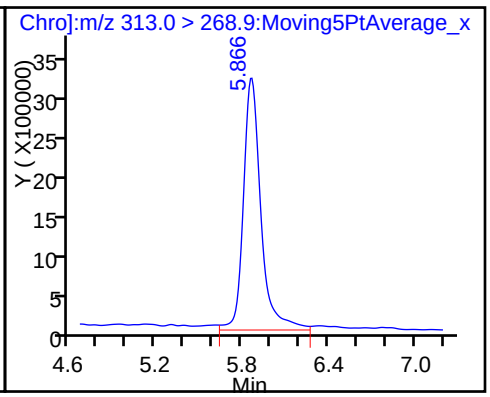
5 Perfluorobutanesulfonic acid



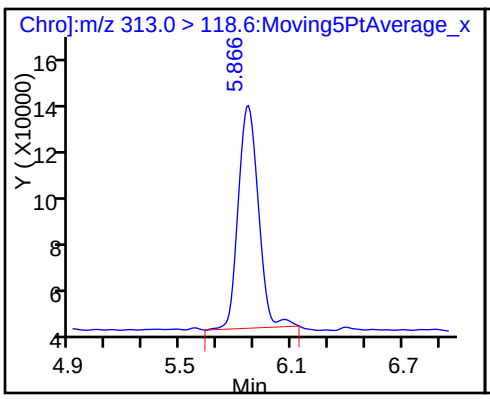
* 6 13C2 PFHxA (IS)



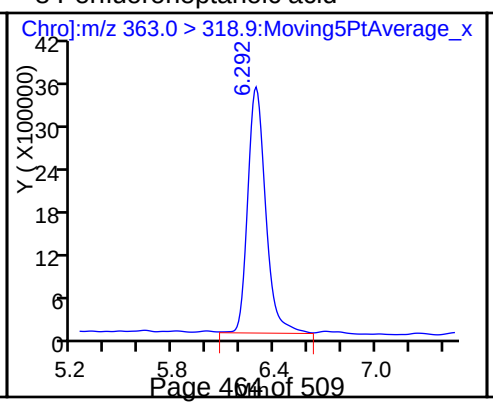
7 Perfluorohexanoic acid



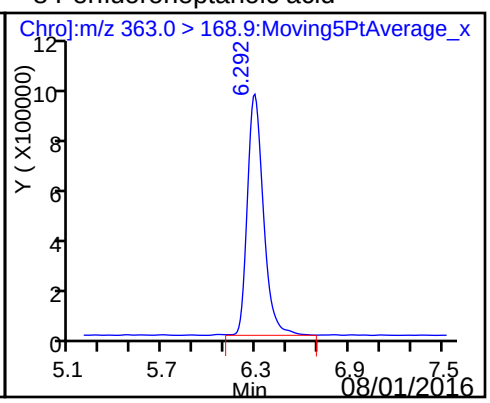
7 Perfluorohexanoic acid



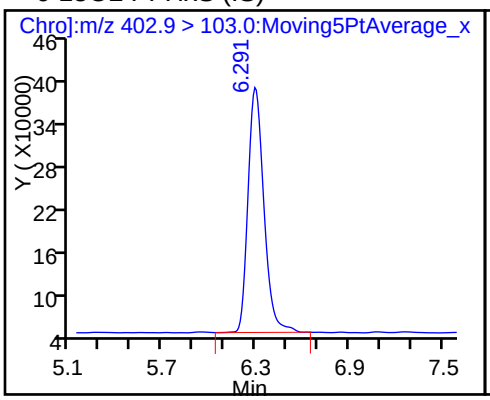
8 Perfluoroheptanoic acid



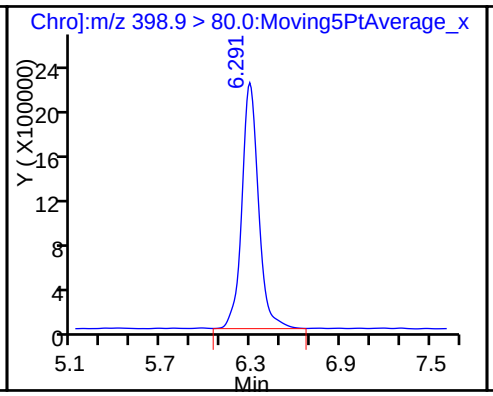
8 Perfluoroheptanoic acid



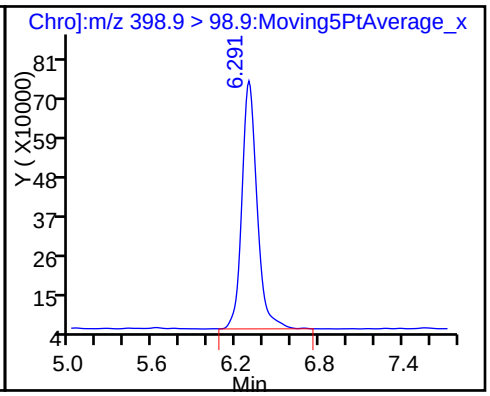
* 9 18O2 PFHxS (IS)



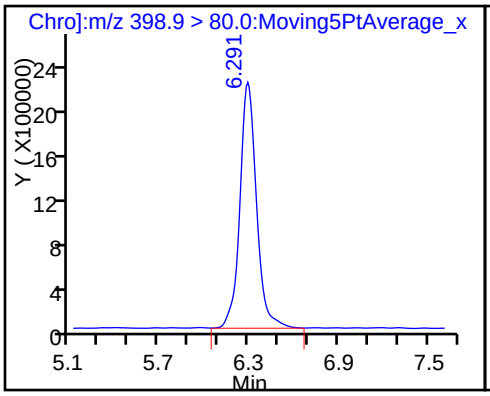
11 Perfluorohexanesulfonic acid



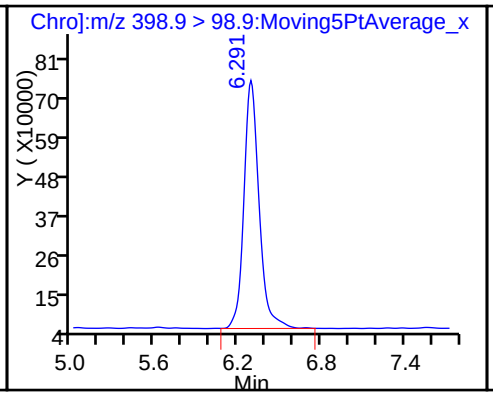
11 Perfluorohexanesulfonic acid



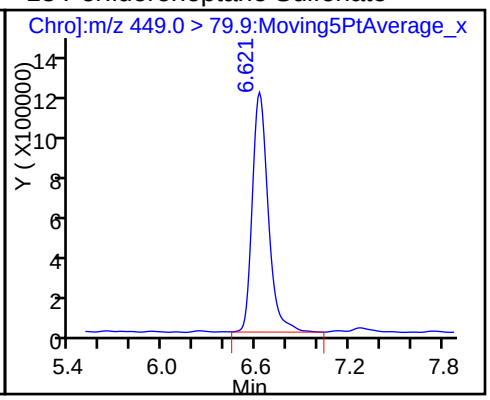
10 Perfluorohexane Sulfonate



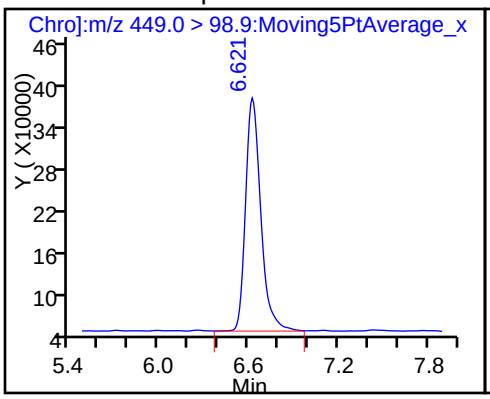
10 Perfluorohexane Sulfonate



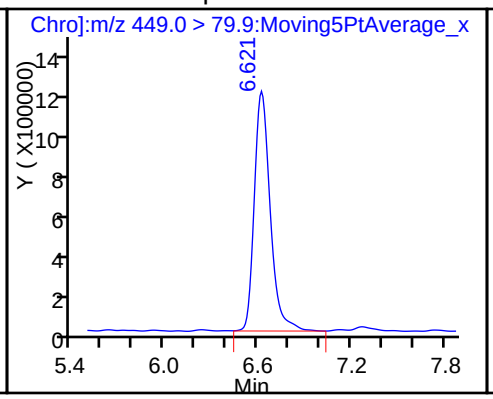
13 Perfluoroheptane Sulfonate



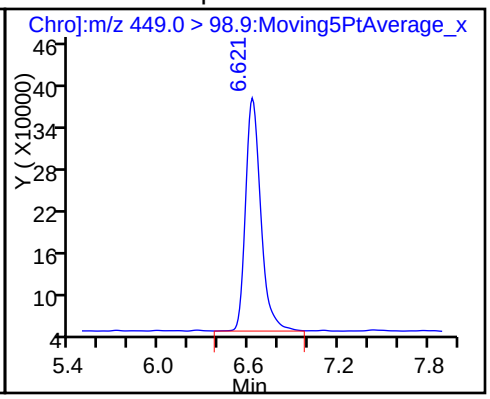
13 Perfluoroheptane Sulfonate



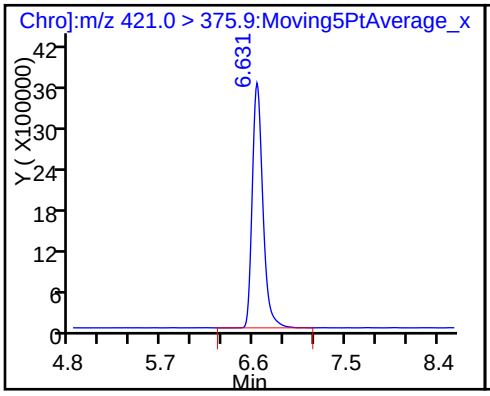
12 Perfluoroheptanesulfonic Acid



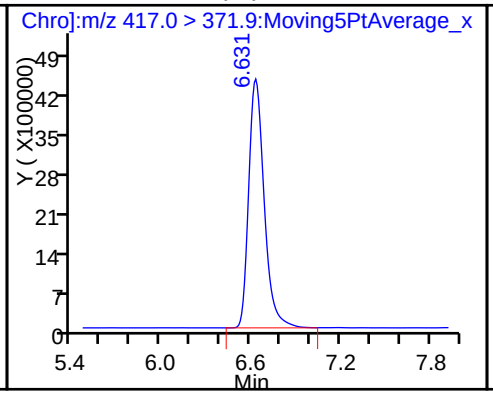
12 Perfluoroheptanesulfonic Acid



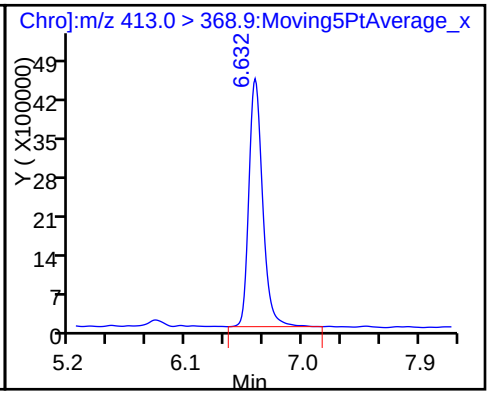
$ 14 13C8 PFOA



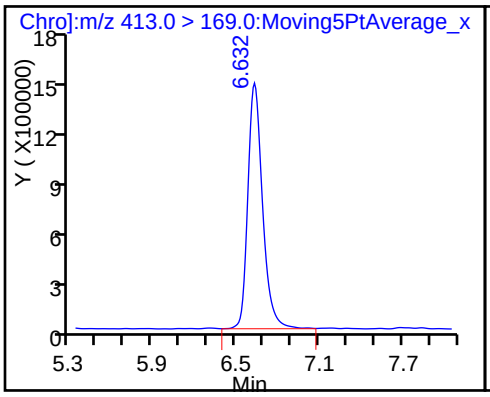
* 15 13C4 PFOA (IS)



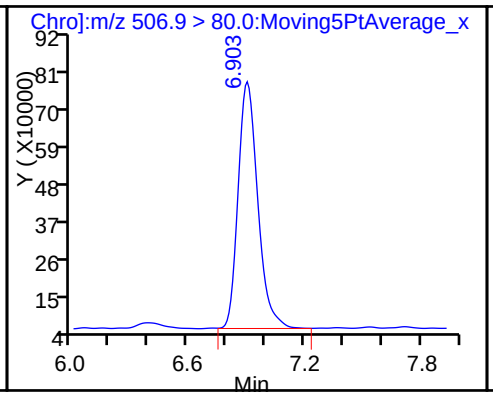
16 Perfluorooctanoic acid



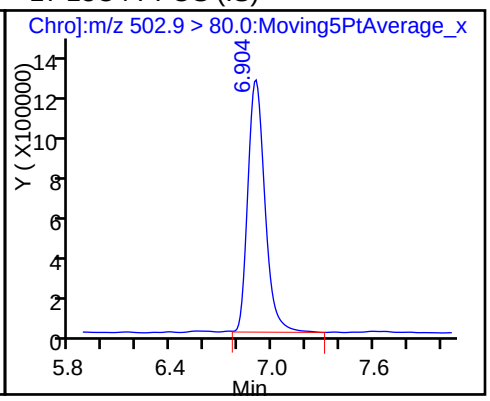
16 Perfluorooctanoic acid



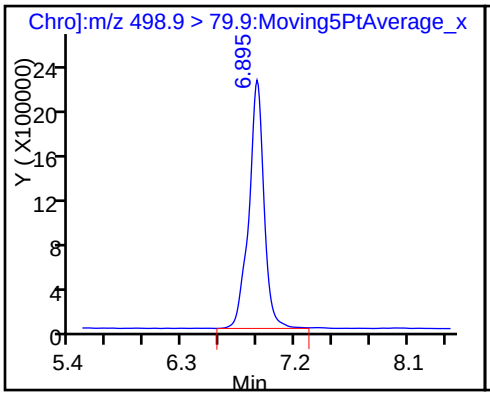
$ 18 13C8 PFOS



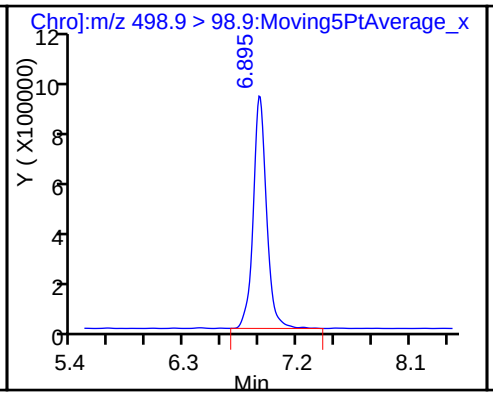
* 17 13C4 PFOS (IS)



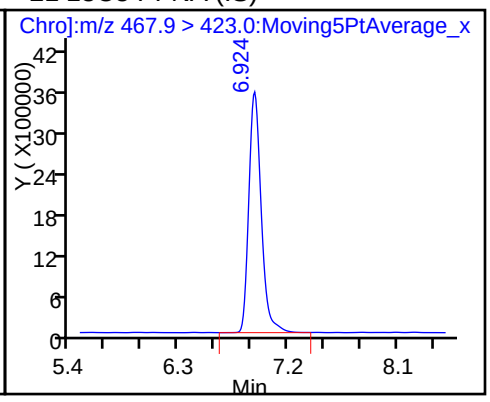
19 Perfluorooctane sulfonic acid



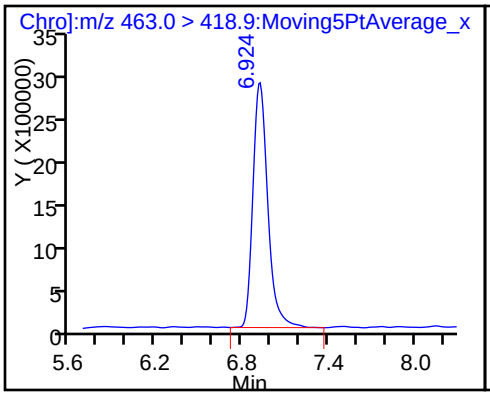
19 Perfluorooctane sulfonic acid



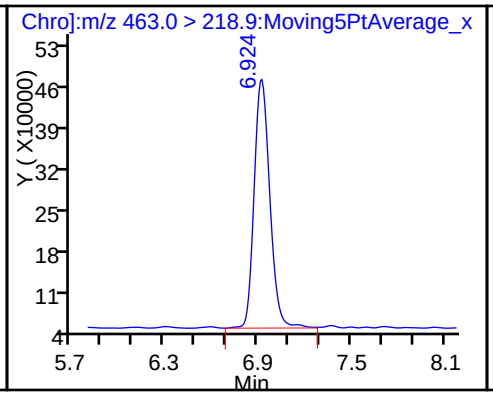
* 21 13C5 PFNA (IS)



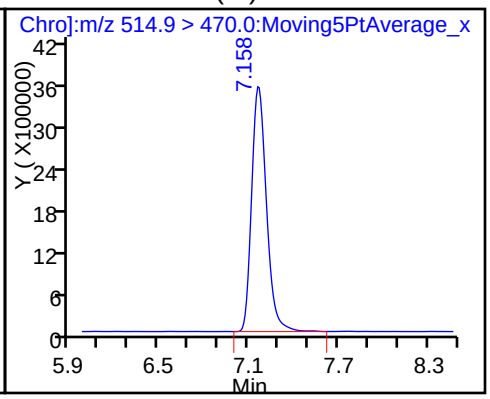
20 Perfluorononanoic acid



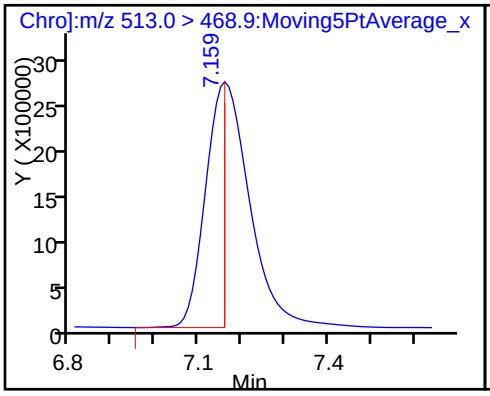
20 Perfluorononanoic acid



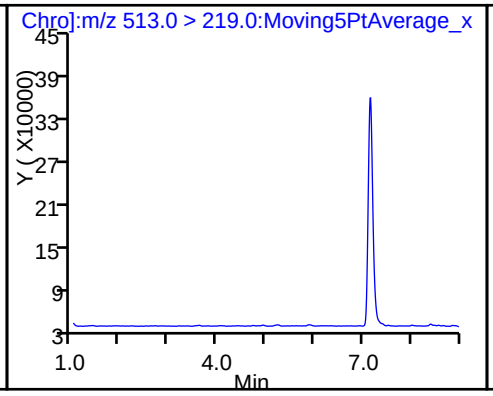
* 22 13C2 PFDA (IS)



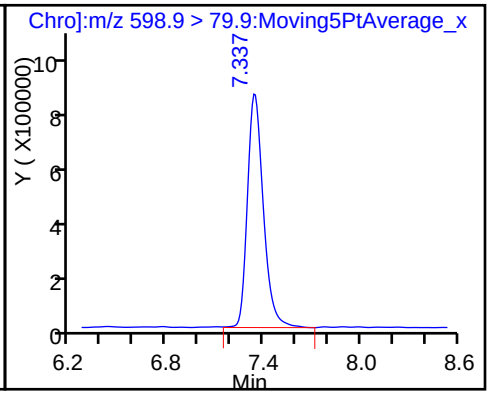
23 Perfluorodecanoic acid



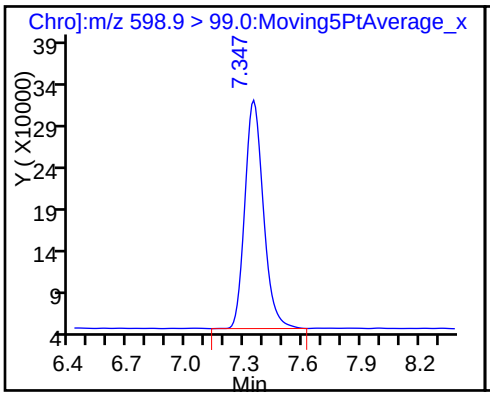
23 Perfluorodecanoic acid



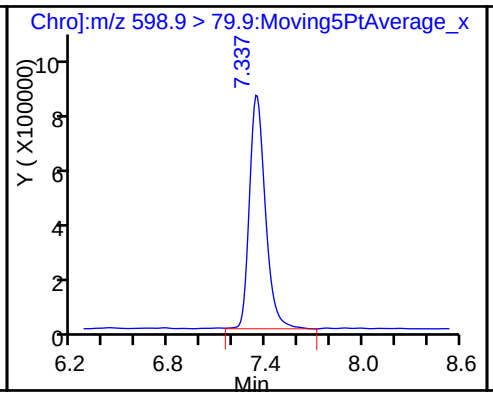
25 Perfluorodecane Sulfonate



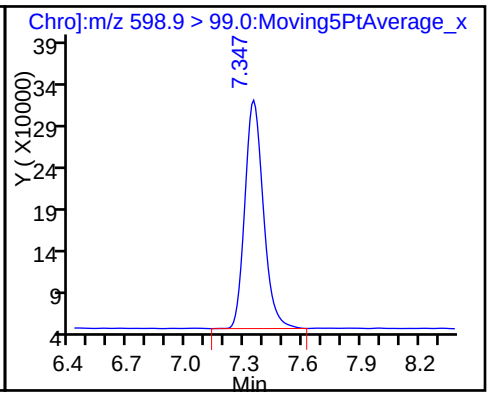
25 Perfluorodecane Sulfonate



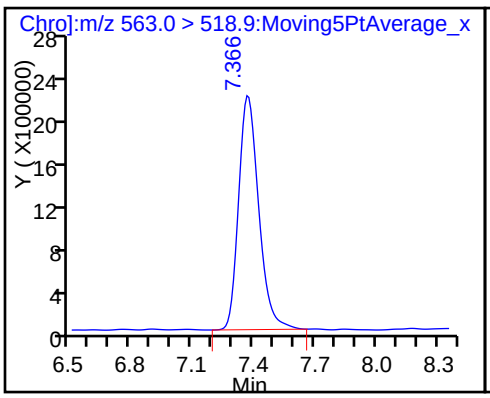
24 Perfluorodecane Sulfonic acid



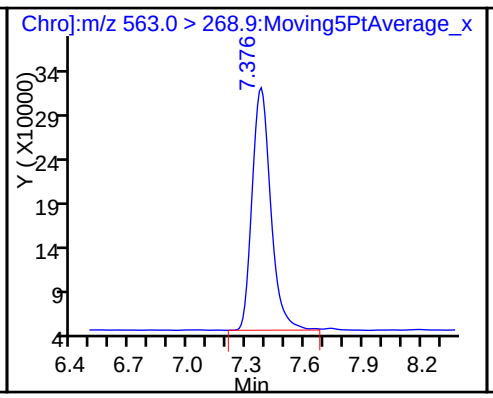
24 Perfluorodecane Sulfonic acid



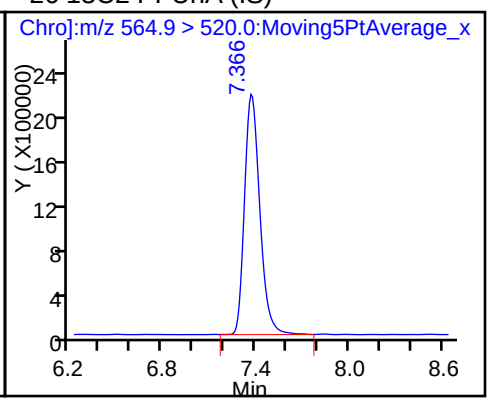
27 Perfluoroundecanoic acid



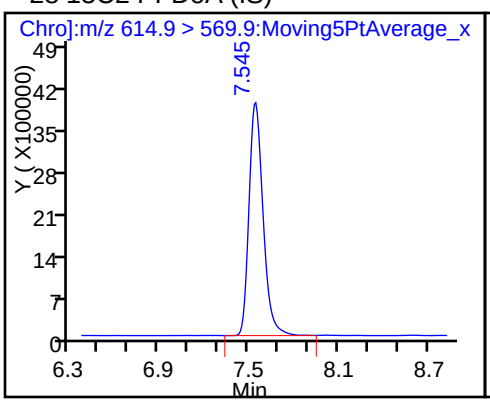
27 Perfluoroundecanoic acid



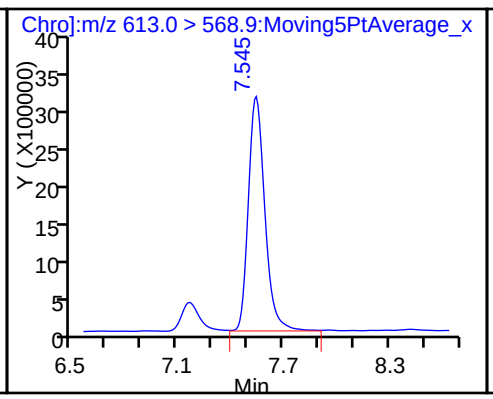
* 26 13C2 PFUnA (IS)



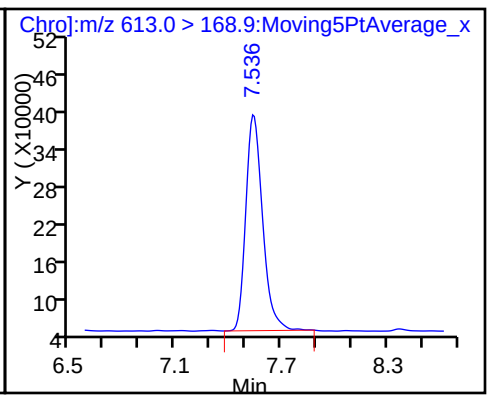
* 28 13C2 PFDoA (IS)



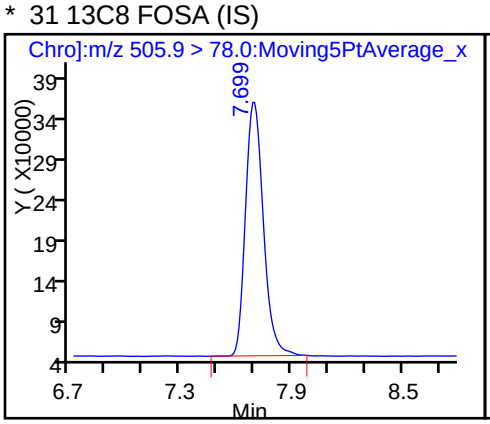
29 Perfluorododecanoic acid



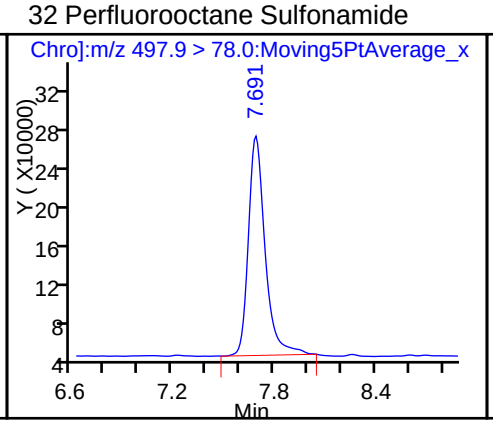
29 Perfluorododecanoic acid



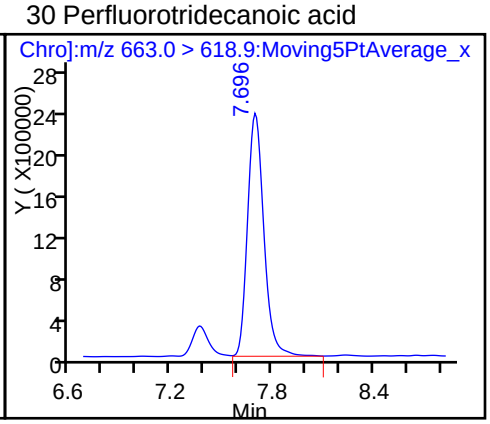
* 31 13C8 FOSA (IS)



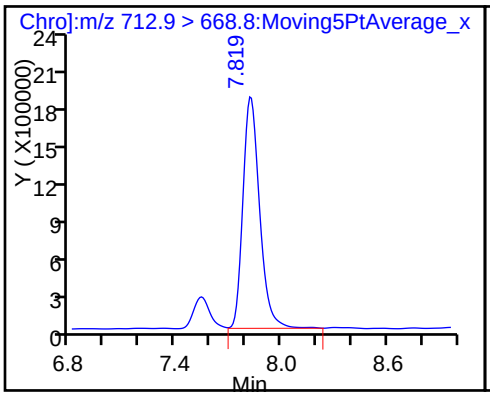
32 Perfluorooctane Sulfonamide



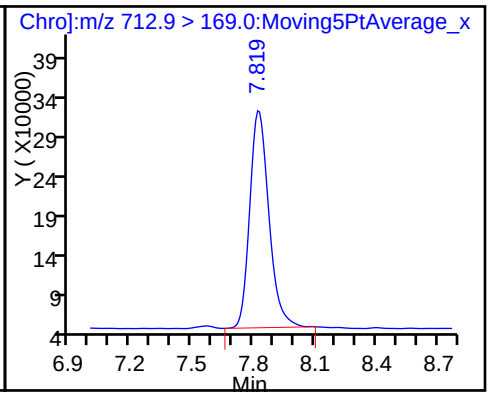
30 Perfluorotridecanoic acid



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: SWF-OF-013 MS RE | Lab Sample ID: 280-85298-1 MS RE

Matrix: Water | Lab File ID: PC516G28053.d

Analysis Method: DV-LC-0012 | Date Collected: 07/05/2016 11:05

Extraction Method: 3535 | Date Extracted: 07/25/2016 10:50

Sample wt/vol: 270.1(mL) | Date Analyzed: 07/28/2016 18:58

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 335652 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	*Perfluorobutane Sulfonate (PFBS)*	*0.159*		*0.019*	*0.0076*
375-85-9	*Perfluoroheptanoic acid (PFHpA)*	*0.196*		*0.028*	*0.012*
108427-53-8	*Perfluorohexane Sulfonate (PFHxS)*	*0.374*		*0.028*	*0.0065*
375-95-1	*Perfluorononanoic acid (PFNA)*	*0.161*		*0.037*	*0.016*
1763-23-1	*Perfluorooctanesulfonic acid (PFOS)*	*0.447*		*0.028*	*0.012*
335-67-1	*Perfluorooctanoic acid (PFOA)*	*0.223*		*0.019*	*0.0091*

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	107		60-155
STL01054	13C8 PFOS	100		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28053.d
Lims ID: 280-85298-C-1-A MS
Client ID: SWF-OF-013
Sample Type: MS
Inject. Date: 28-Jul-2016 18:58:09 ALS Bottle#: 0 Worklist Smp#: 9
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85298-C-1-A MS, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 29-Jul-2016 10:36:50 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK010

First Level Reviewer: meyera Date: 29-Jul-2016 09:42:56

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	3.916	4.067	-0.151		15110124	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	3.925	4.068	-0.143	1.002	15393558	9.50			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.062	5.147	-0.085	0.895	22761142	12.1			
4 Perfluorobutane Sulfonate									R
298.9 > 79.9	5.184	5.260	-0.076	0.850	9634956	8.61			R
298.9 > 98.9	5.194	5.260	-0.066	0.851	2599115		3.71(1.80-3.35)		
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.184	5.260	-0.076	0.850	9634956	8.61			
298.9 > 98.9	5.194	5.260	-0.066	0.851	2599115		3.71(2.57-2.57)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.657	5.724	-0.067		16014783	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.658	5.724	-0.066	1.000	23792890	15.7			
313.0 > 118.6	5.667	5.724	-0.057	1.002	746085		31.89(34.05-63.23)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.093	6.159	-0.066	0.946	22344674	10.6			
363.0 > 168.9	6.093	6.159	-0.066	0.946	5453747		4.10(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.102	6.168	-0.066		2027527	9.46			
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.102	6.168	-0.066	1.000	16698931	20.2			
398.9 > 98.9	6.102	6.168	-0.066	1.000	5516499		3.03(1.85-1.85)		
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.102	6.168	-0.066	1.000	16698931	20.2			R
398.9 > 98.9	6.102	6.168	-0.066	1.000	5516499		3.03(1.30-2.41)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.432	6.498	-0.066	0.957	8757420	10.2			
449.0 > 98.9	6.441	6.498	-0.057	0.958	2464064		3.55(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.432	6.498	-0.066	0.957	8757420	10.2			
449.0 > 98.9	6.441	6.498	-0.057	0.958	2464064		3.55(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.442	6.508	-0.066	1.000	20696004	10.5			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.442	6.508	-0.066		24311018	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.442	6.508	-0.066	1.000	30492530	12.1			
413.0 > 169.0	6.442	6.508	-0.066	1.000	9256578		3.29(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.723	6.780	-0.057	1.000	4035548	9.29			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.724	6.781	-0.057		6793127	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.715	6.781	-0.066	0.999	20034339	24.2			R
498.9 > 98.9	6.724	6.781	-0.057	1.000	6643560		3.02(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.744	6.801	-0.056		19720726	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.734	6.801	-0.067	0.999	19241844	8.69			
463.0 > 218.9	6.734	6.801	-0.067	0.999	2821933		6.82(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	6.988	7.045	-0.057		18250923	10.0			
23 Perfluorodecanoic acid									
513.0 > 468.9	6.988	7.045	-0.057	1.000	17516732	9.53			
513.0 > 219.0	6.979	7.045	-0.066	0.999	1570996		11.15(10.49-19.48)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.167	7.233	-0.066	1.066	4487712	5.09			
598.9 > 99.0	7.176	7.233	-0.057	1.067	1351478		3.32(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.167	7.233	-0.066	1.066	4487712	5.09			
598.9 > 99.0	7.176	7.233	-0.057	1.067	1351478		3.32(2.84-2.84)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.196	7.262	-0.066		9099261	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.196	7.262	-0.066	1.000	11123883	8.62			R
563.0 > 268.9	7.196	7.262	-0.066	1.000	1300938		8.55(3.47-6.45)		
* 28 13C2 PFDoA (IS)									s
614.9 > 569.9	7.375	7.441	-0.066		15139600	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.375	7.441	-0.066	1.000	13773891	8.85			
613.0 > 168.9	7.375	7.441	-0.066	1.000	1793376		7.68(5.96-11.06)		
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.526	7.602	-0.076	1.021	8037878	5.67			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.519	7.557	-0.038		1960974	10.0			
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.520	7.558	-0.038	1.000	2077643	9.76			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.658	7.734	-0.076	1.038	6084759	6.80			
712.9 > 169.0	7.658	7.734	-0.076	1.038	920908		6.61(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

s - Failed ISTD Recovery Test

Report Date: 29-Jul-2016 10:37:11 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28053.d

Injection Date: 28-Jul-2016 18:58:09 Instrument ID: LC_LCMS5

Lims ID: 280-85298-C-1-A MS

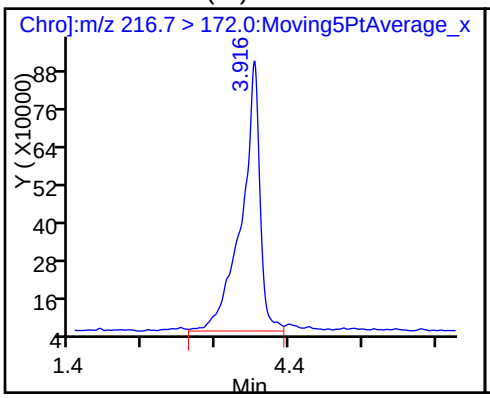
Client ID: SWF-OF-013

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 9

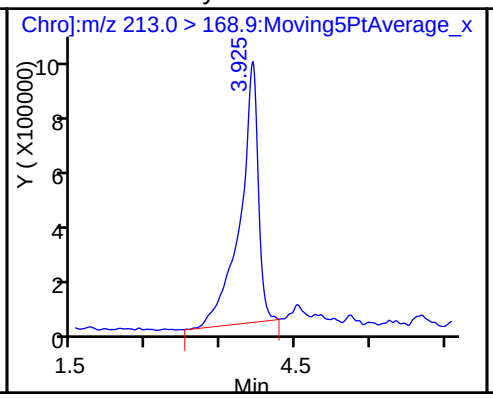
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

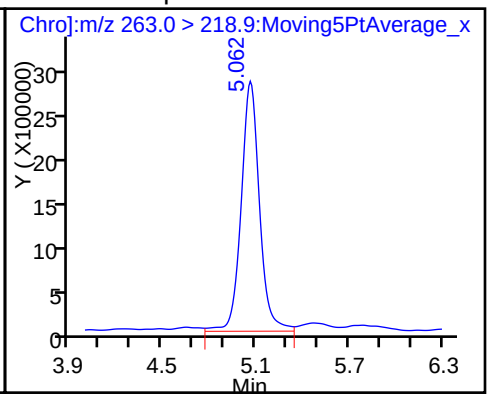
* 1 13C4 PFBA (IS)



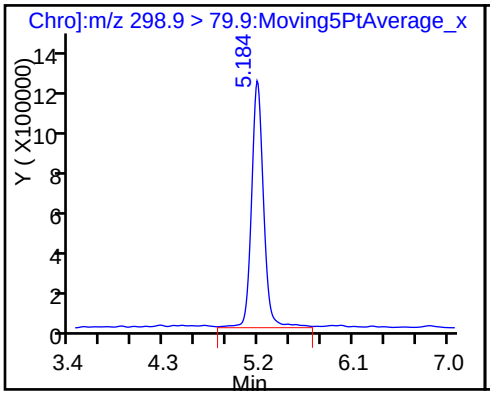
2 Perfluorobutyric acid



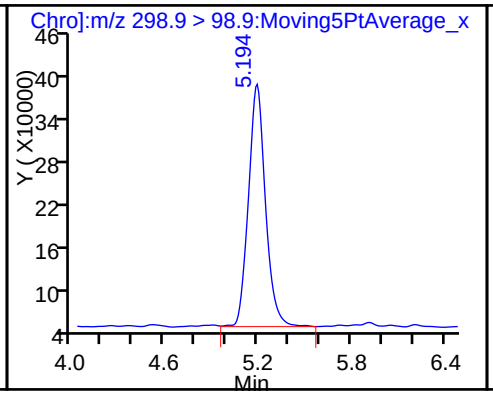
3 Perfluoropentanoic acid



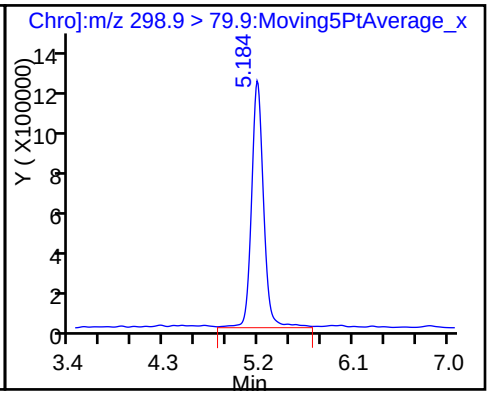
4 Perfluorobutane Sulfonate



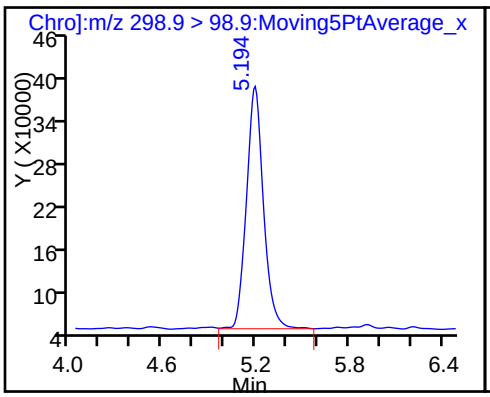
4 Perfluorobutane Sulfonate



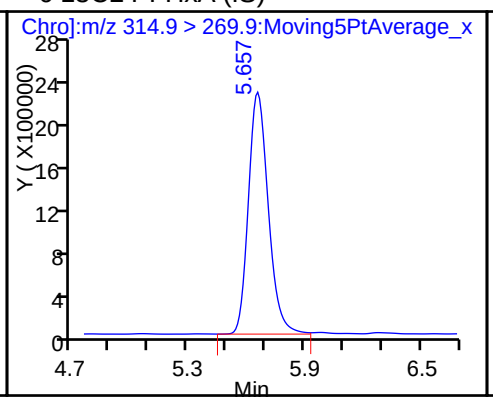
5 Perfluorobutanesulfonic acid



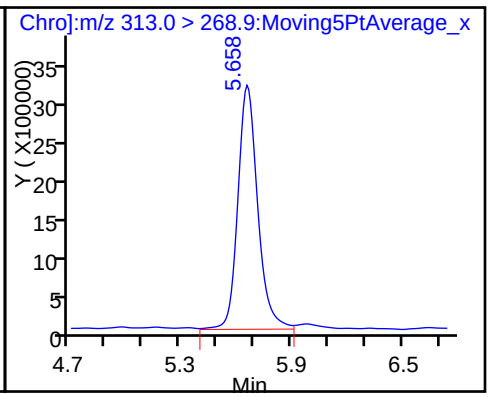
5 Perfluorobutanesulfonic acid



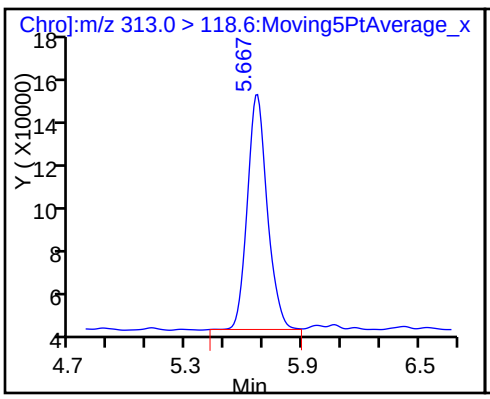
* 6 13C2 PFHxA (IS)



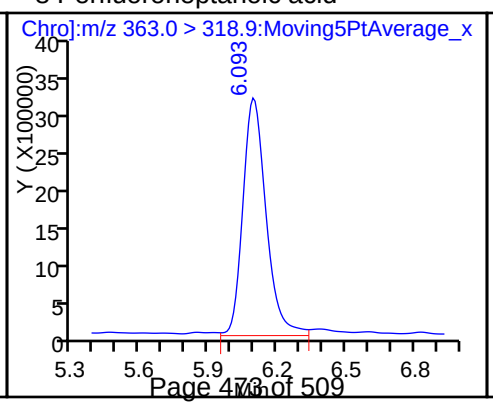
7 Perfluorohexanoic acid



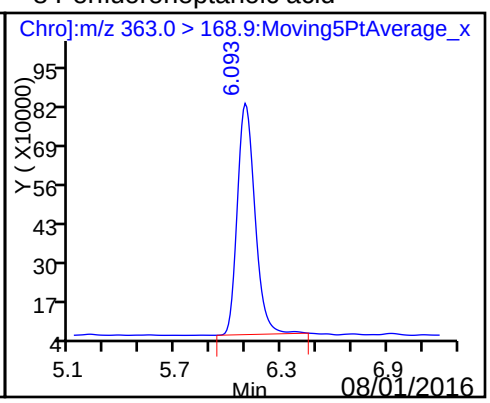
7 Perfluorohexanoic acid



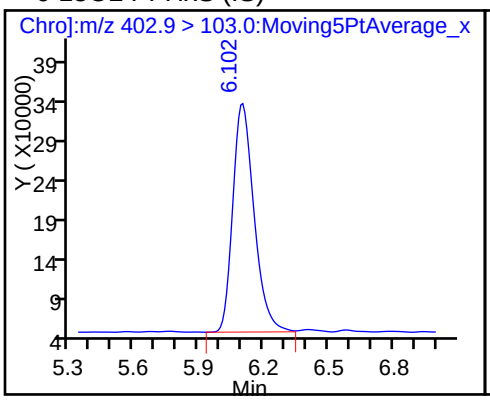
8 Perfluoroheptanoic acid



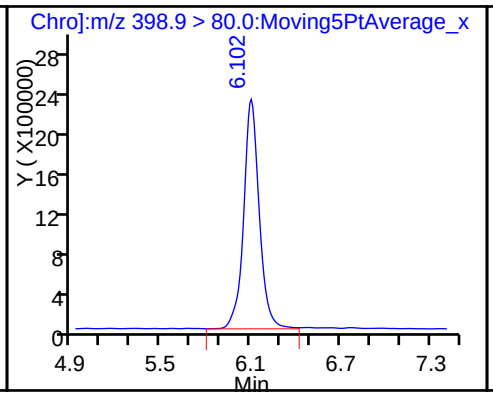
8 Perfluoroheptanoic acid



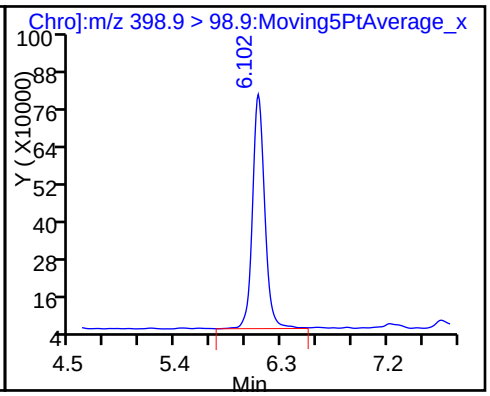
* 9 18O2 PFHxS (IS)



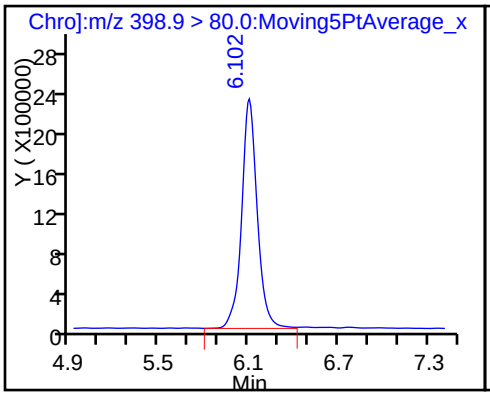
11 Perfluorohexanesulfonic acid



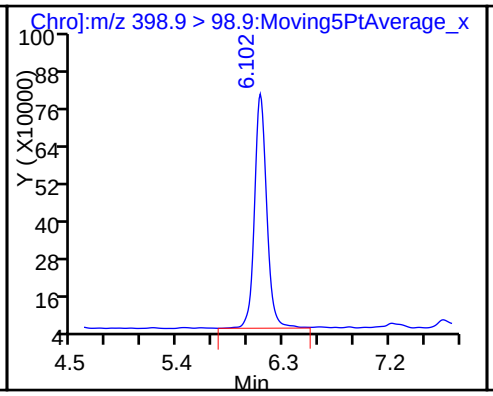
11 Perfluorohexanesulfonic acid



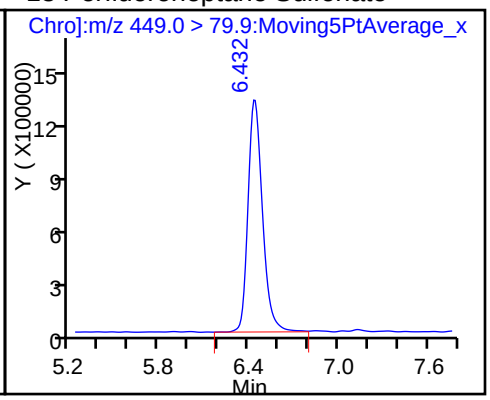
10 Perfluorohexane Sulfonate



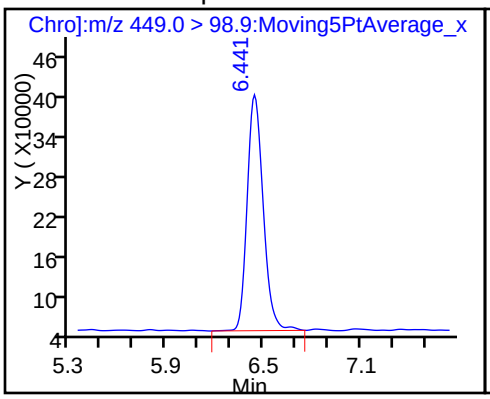
10 Perfluorohexane Sulfonate



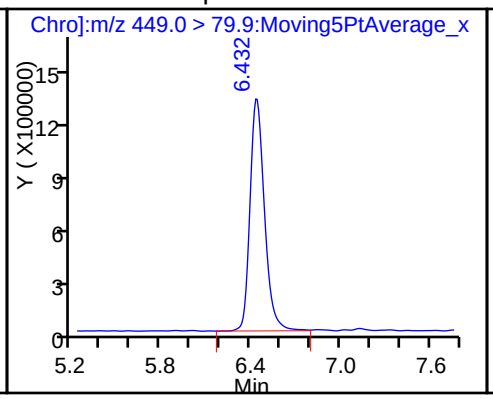
13 Perfluoroheptane Sulfonate



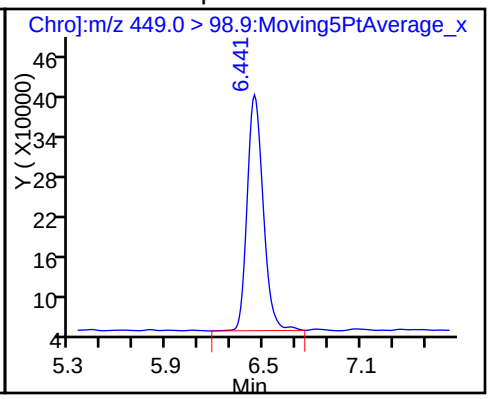
13 Perfluoroheptane Sulfonate



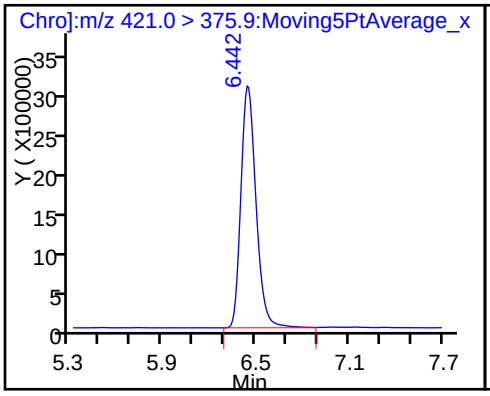
12 Perfluoroheptanesulfonic Acid



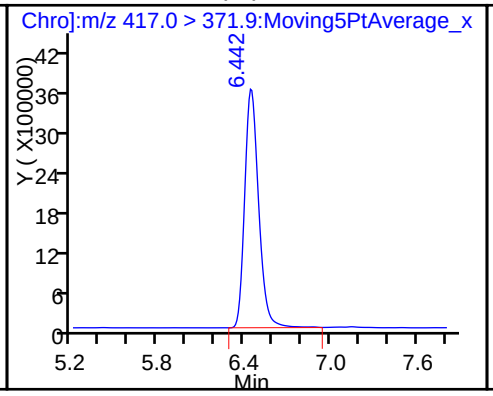
12 Perfluoroheptanesulfonic Acid



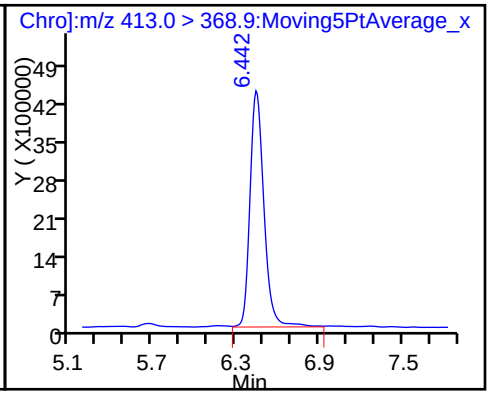
$ 14 13C8 PFOA



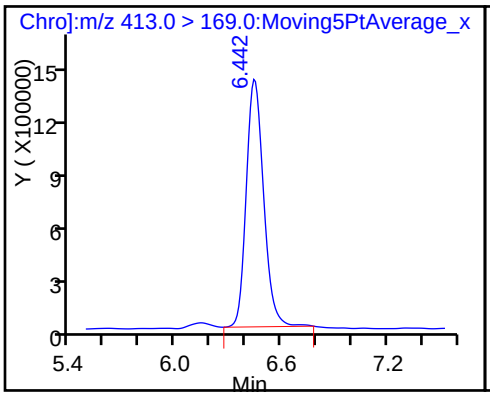
* 15 13C4 PFOA (IS)



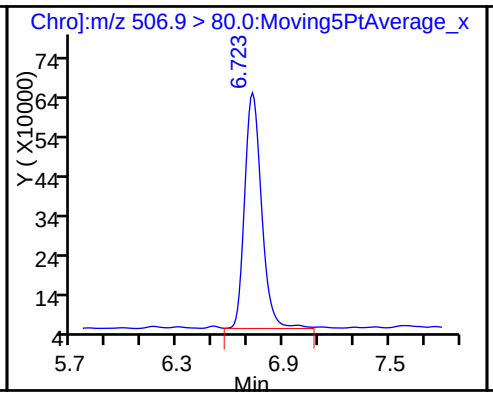
16 Perfluorooctanoic acid



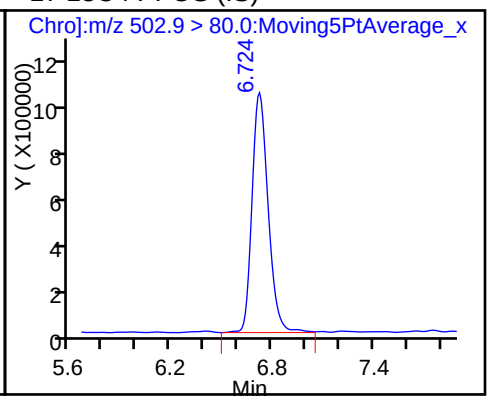
16 Perfluorooctanoic acid



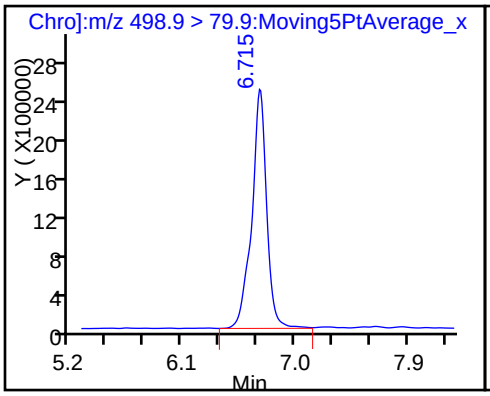
$ 18 13C8 PFOS



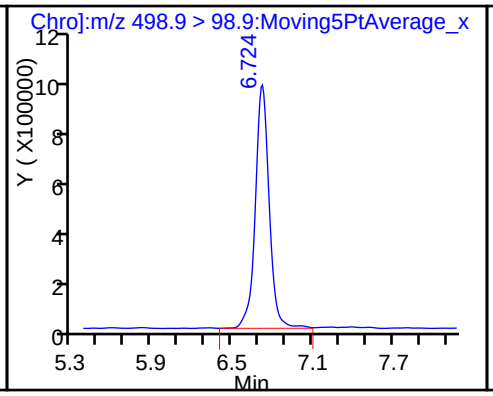
* 17 13C4 PFOS (IS)



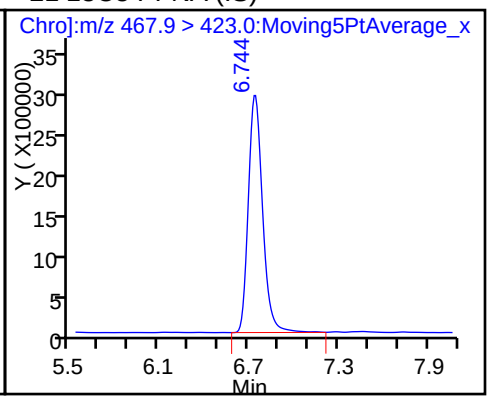
19 Perfluorooctane sulfonic acid



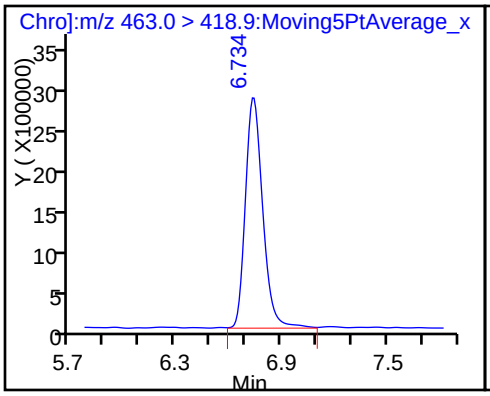
19 Perfluorooctane sulfonic acid



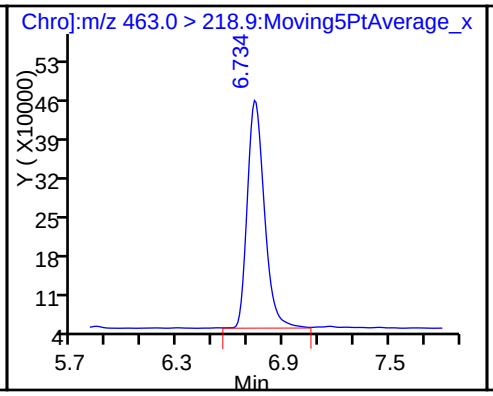
* 21 13C5 PFNA (IS)



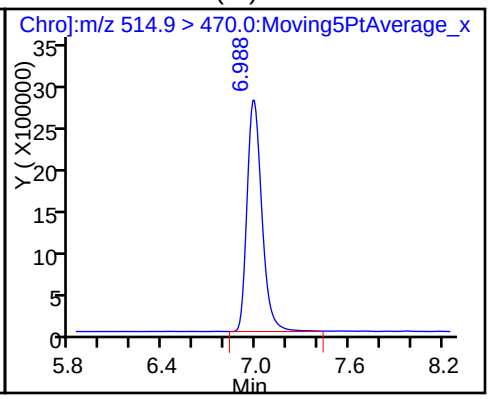
20 Perfluorononanoic acid



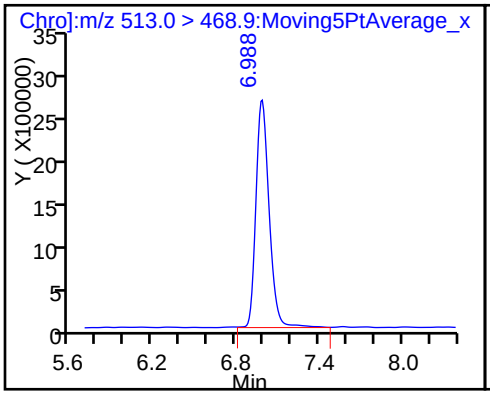
20 Perfluorononanoic acid



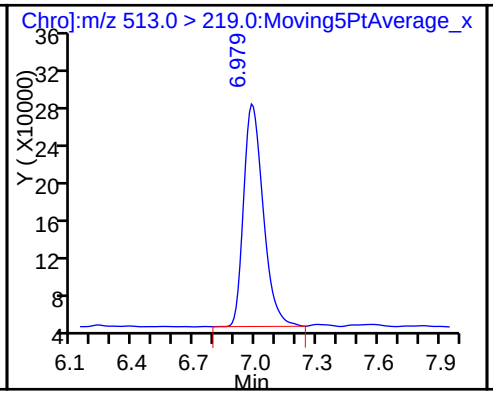
* 22 13C2 PFDA (IS)



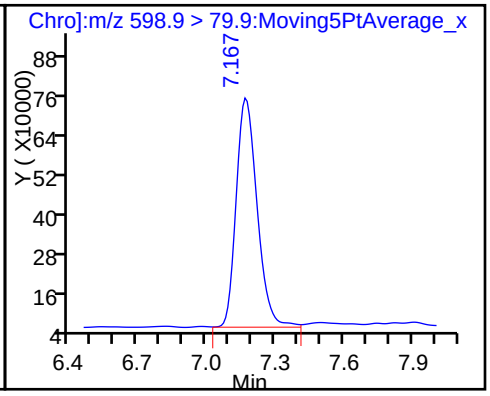
23 Perfluorodecanoic acid



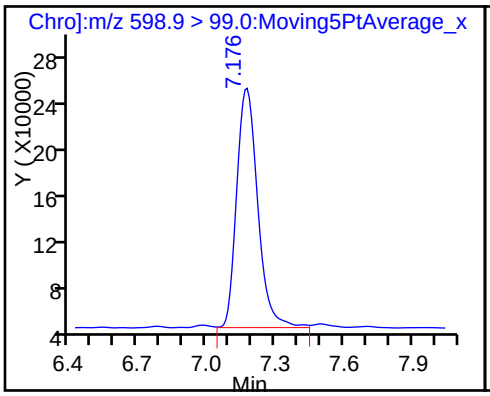
23 Perfluorodecanoic acid



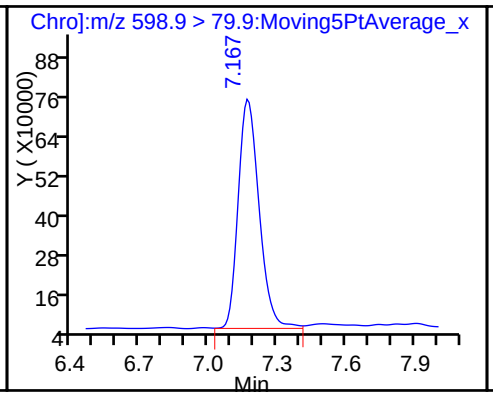
25 Perfluorodecane Sulfonate



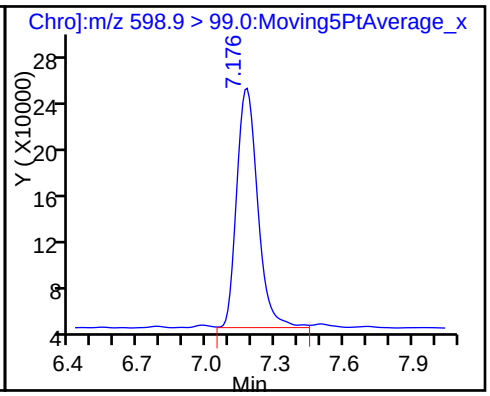
25 Perfluorodecane Sulfonate



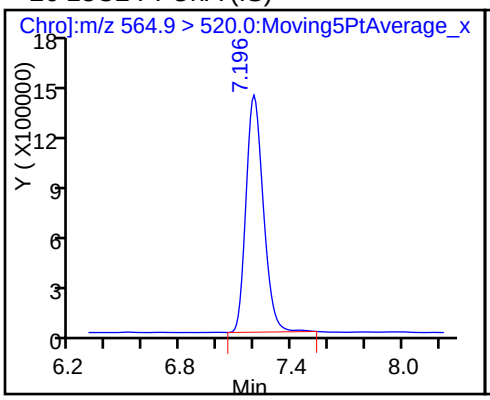
24 Perfluorodecane Sulfonic acid



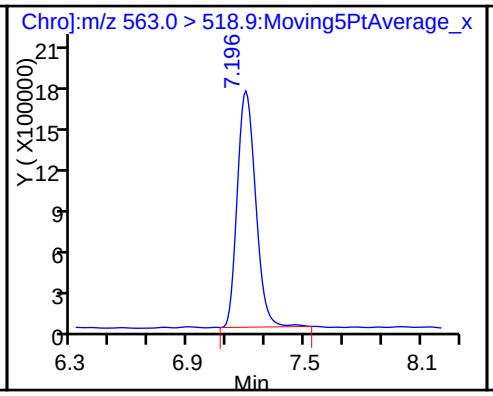
24 Perfluorodecane Sulfonic acid



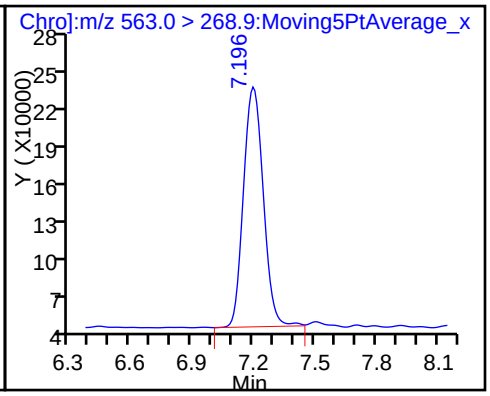
* 26 13C2 PFUnA (IS)



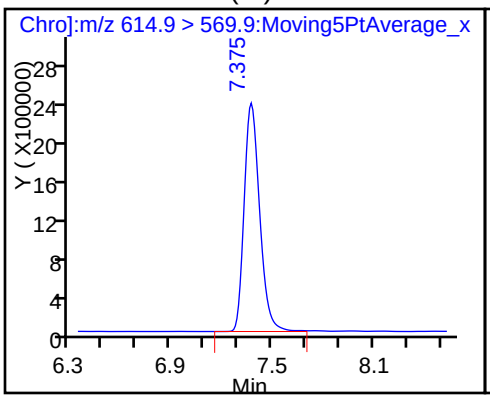
27 Perfluoroundecanoic acid



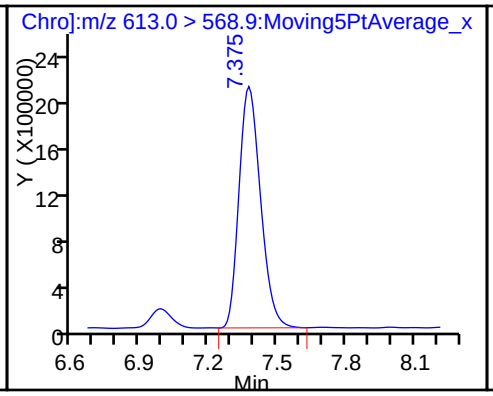
27 Perfluoroundecanoic acid



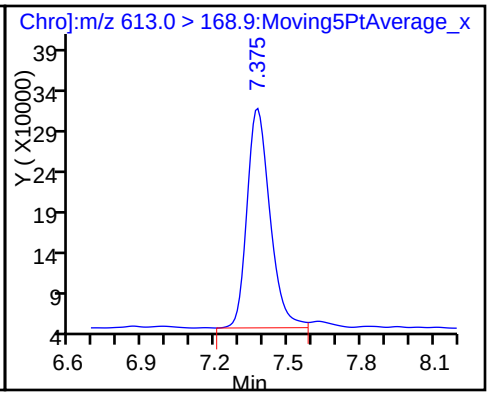
* 28 13C2 PFDoA (IS)



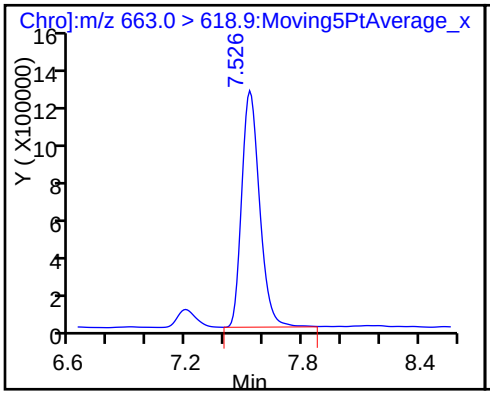
29 Perfluorododecanoic acid



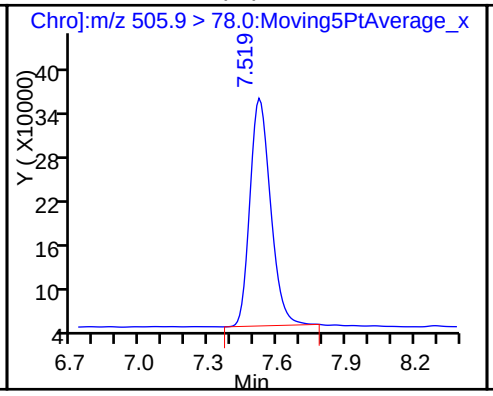
29 Perfluorododecanoic acid



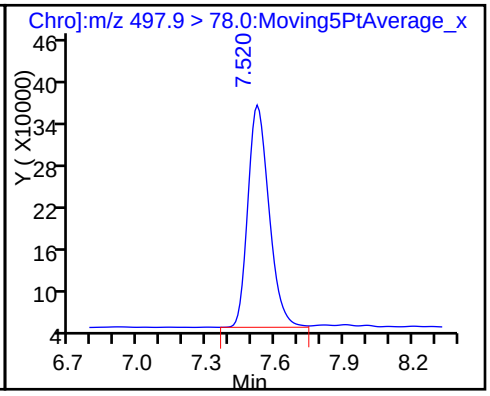
30 Perfluorotridecanoic acid



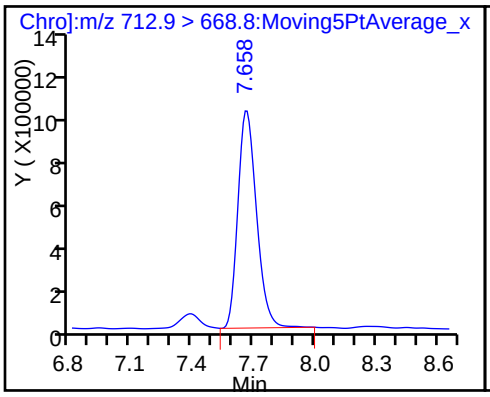
* 31 13C8 FOSA (IS)



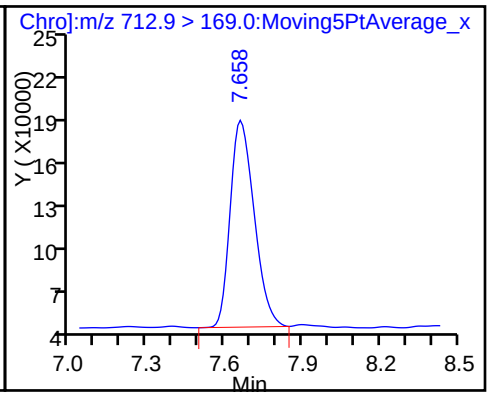
32 Perfluorooctane Sulfonamide



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: SWF-OF-013 MSD | Lab Sample ID: 280-85298-1 MSD

Matrix: Water | Lab File ID: PC516G18048.d

Analysis Method: DV-LC-0012 | Date Collected: 07/05/2016 11:05

Extraction Method: 3535 | Date Extracted: 07/16/2016 07:25

Sample wt/vol: 248.4(mL) | Date Analyzed: 07/18/2016 21:31

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 334166 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	Perfluorobutane Sulfonate (PFBS)	0.132		0.020	0.0083
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.194		0.030	0.013
108427-53-8	Perfluorohexane Sulfonate (PFHxS)	0.335		0.030	0.0070
375-95-1	Perfluorononanoic acid (PFNA)	0.151		0.040	0.018
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.266		0.030	0.013
335-67-1	Perfluorooctanoic acid (PFOA)	0.199		0.020	0.0099

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	105		60-155
STL01054	13C8 PFOS	102		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18048.d
Lims ID: 280-85298-A-1-A MSD
Client ID: SWF-OF-013
Sample Type: MSD
Inject. Date: 18-Jul-2016 21:31:00 ALS Bottle#: 0 Worklist Smp#: 43
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85298-A-1-A MSD, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 19-Jul-2016 15:53:35 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK035

First Level Reviewer: fiedlerh Date: 19-Jul-2016 14:19:58

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	4.219	4.276	-0.057		29001665	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	4.219	4.276	-0.057	1.000	25290961	8.13			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.299	5.318	-0.019	0.902	24803075	10.1			
4 Perfluorobutane Sulfonate									R
298.9 > 79.9	5.412	5.431	-0.019	0.858	8443544	6.57			R
298.9 > 98.9	5.412	5.431	-0.019	0.858	2478380		3.41(1.80-3.35)		
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.412	5.431	-0.019	0.858	8443544	6.57			
298.9 > 98.9	5.412	5.431	-0.019	0.858	2478380		3.41(2.57-2.57)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.875	5.894	-0.019		20858762	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.876	5.894	-0.018	1.000	27212018	13.8			
313.0 > 118.6	5.885	5.894	-0.009	1.002	659498		41.26(34.05-63.23)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.311	6.320	-0.009	0.949	25977085	9.65			
363.0 > 168.9	6.311	6.320	-0.009	0.949	6481168		4.01(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.310	6.329	-0.019		2328268	9.46			
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.310	6.320	-0.010	1.000	15781063	16.6			
398.9 > 98.9	6.310	6.320	-0.010	1.000	4874204		3.24(1.85-1.85)		
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.310	6.320	-0.010	1.000	15781063	16.6			R
398.9 > 98.9	6.310	6.320	-0.010	1.000	4874204		3.24(1.30-2.41)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.640	6.650	-0.010	0.960	8068283	7.94			
449.0 > 98.9	6.640	6.650	-0.010	0.960	2498130		3.23(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.640	6.650	-0.010	0.960	8068283	7.94			
449.0 > 98.9	6.640	6.650	-0.010	0.960	2498130		3.23(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.650	6.660	-0.010	1.000	26267267	10.5			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.650	6.669	-0.019		30951551	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.651	6.660	-0.010	1.000	31873321	9.89			
413.0 > 169.0	6.651	6.660	-0.010	1.000	10423803		3.06(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.913	6.932	-0.019	1.000	4978433	9.71			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.913	6.932	-0.019		8015666	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.914	6.932	-0.018	1.000	12961089	13.2			R
498.9 > 98.9	6.914	6.932	-0.018	1.000	4188643		3.09(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.933	6.952	-0.019		24158903	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.943	6.952	-0.009	1.001	20357932	7.50			
463.0 > 218.9	6.933	6.952	-0.019	1.000	3220421		6.32(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.177	7.196	-0.019		22995741	10.0			
23 Perfluorodecanoic acid									R
513.0 > 468.9	7.178	7.197	-0.019	1.000	17495507	7.54			R
513.0 > 219.0	7.178	7.197	-0.019	1.000	1775002		9.86(10.49-19.48)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.356	7.375	-0.019	1.064	4520800	4.34			
598.9 > 99.0	7.366	7.375	-0.009	1.065	1382332		3.27(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.356	7.375	-0.019	1.064	4520800	4.34			
598.9 > 99.0	7.366	7.375	-0.009	1.065	1382332		3.27(2.84-2.84)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.385	7.395	-0.010		12423362	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.385	7.404	-0.019	1.000	12926456	7.33			R
563.0 > 268.9	7.385	7.404	-0.019	1.000	1448402		8.92(3.47-6.45)		
* 28 13C2 PFDoA (IS)									
614.9 > 569.9	7.564	7.573	-0.009		19362904	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.555	7.574	-0.019	0.999	15623458	7.84			
613.0 > 168.9	7.555	7.574	-0.019	0.999	2055025		7.60(5.96-11.06)		
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.715	7.725	-0.010	1.020	12272318	6.79			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.709	7.728	-0.019		2083190	10.0			
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.710	7.729	-0.019	1.000	1742038	7.70			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.838	7.847	-0.009	1.036	11063477	9.67			
712.9 > 169.0	7.838	7.847	-0.009	1.036	1835538		6.03(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

s - Failed ISTD Recovery Test

Report Date: 19-Jul-2016 15:53:39 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160719-48957.b\PC516G18048.d

Injection Date: 18-Jul-2016 21:31:00 Instrument ID: LC_LCMS5

Lims ID: 280-85298-A-1-A MSD

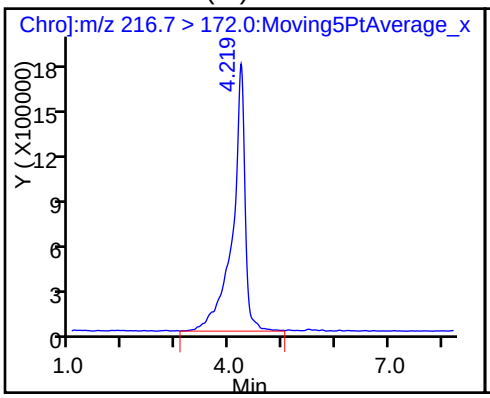
Client ID: SWF-OF-013

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 43

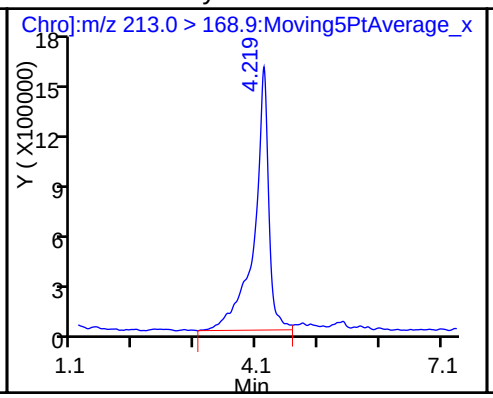
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

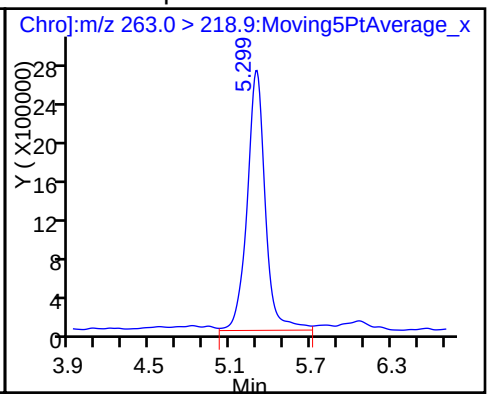
* 1 13C4 PFBA (IS)



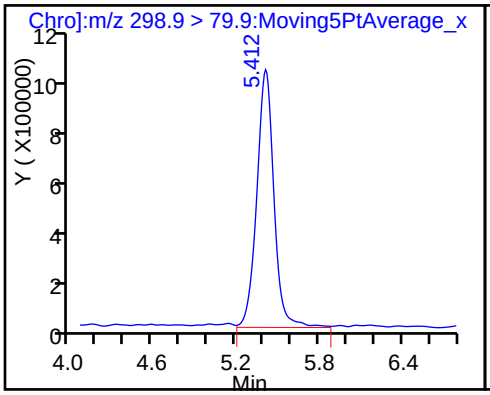
2 Perfluorobutyric acid



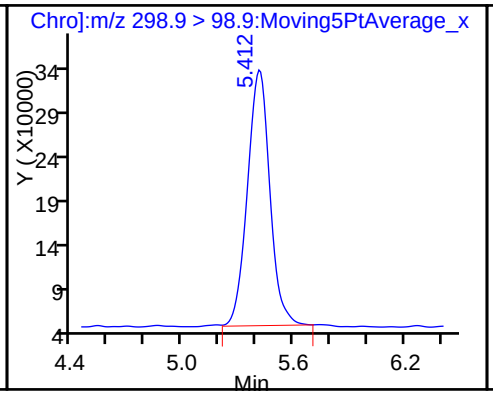
3 Perfluoropentanoic acid



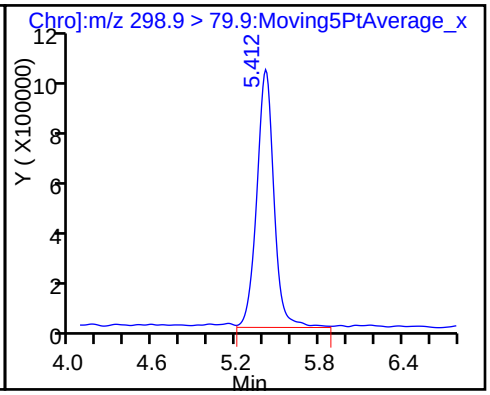
4 Perfluorobutane Sulfonate



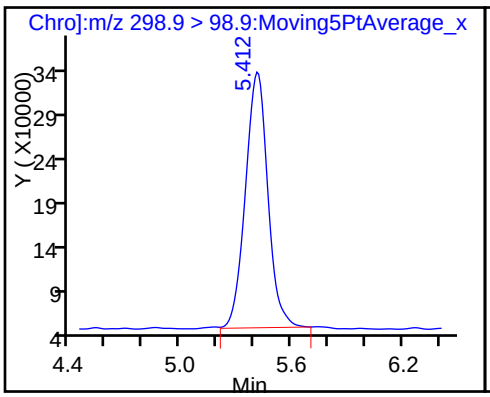
4 Perfluorobutane Sulfonate



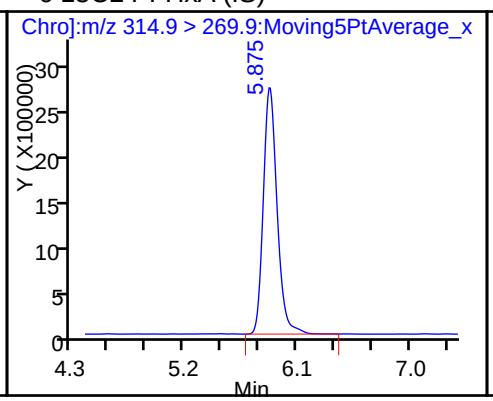
5 Perfluorobutanesulfonic acid



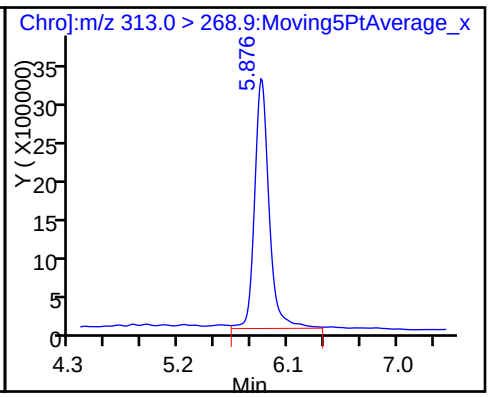
5 Perfluorobutanesulfonic acid



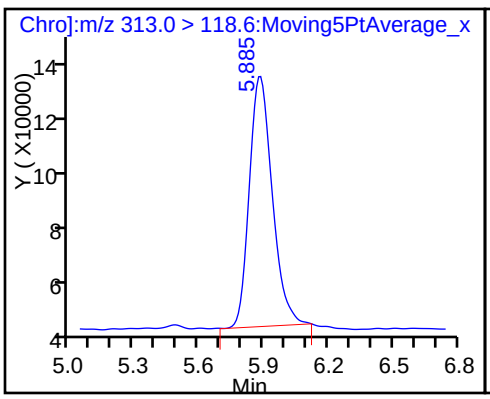
* 6 13C2 PFHxA (IS)



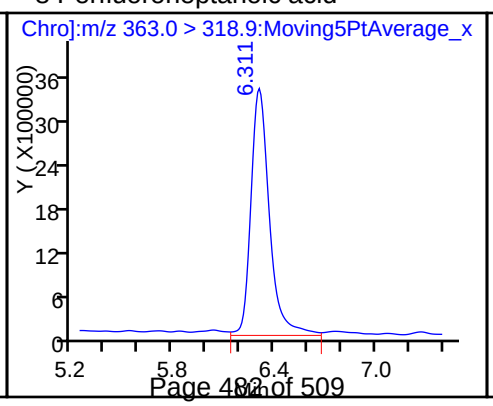
7 Perfluorohexanoic acid



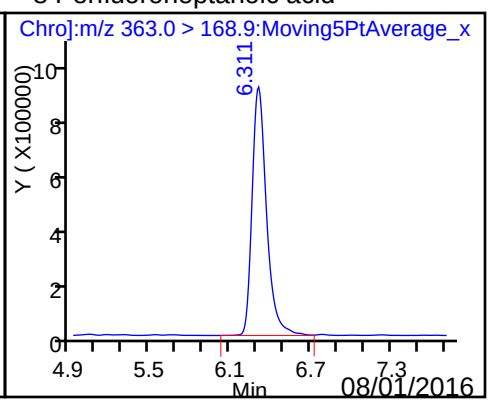
7 Perfluorohexanoic acid



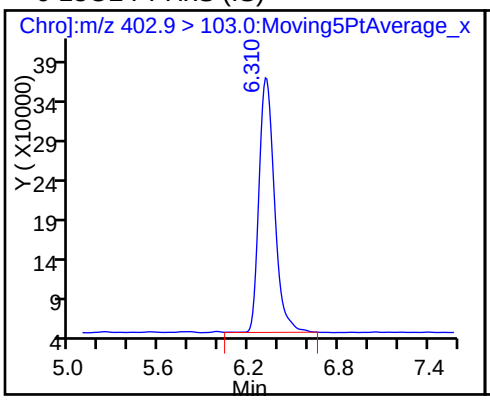
8 Perfluoroheptanoic acid



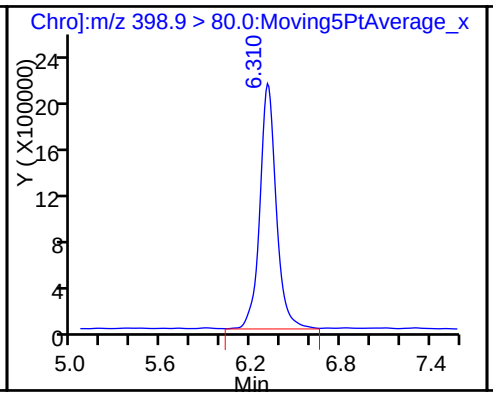
8 Perfluoroheptanoic acid



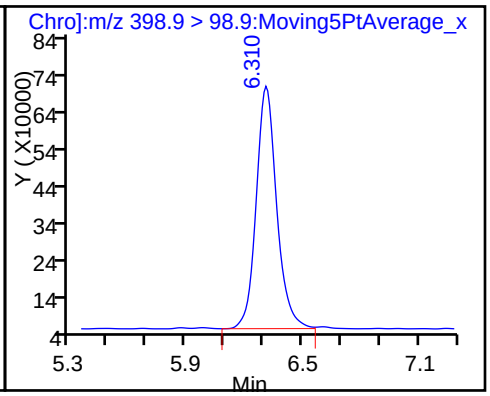
* 9 18O2 PFHxS (IS)



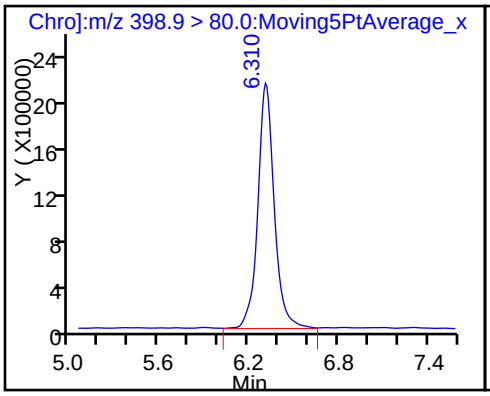
11 Perfluorohexanesulfonic acid



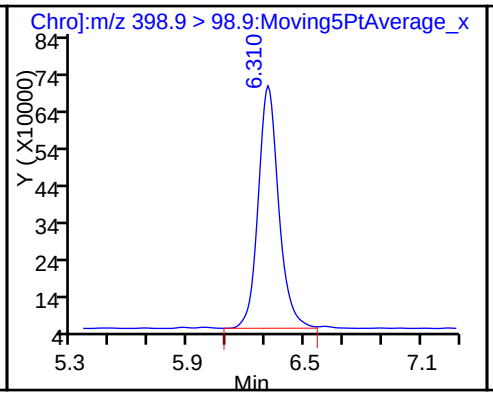
11 Perfluorohexanesulfonic acid



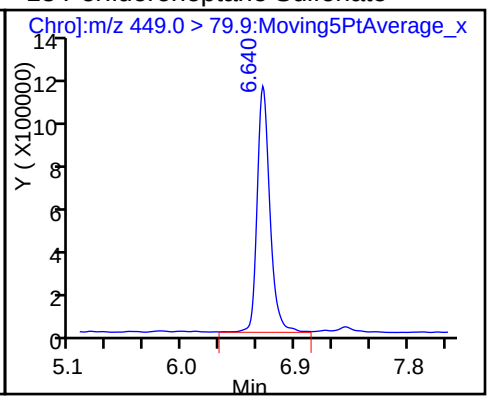
10 Perfluorohexane Sulfonate



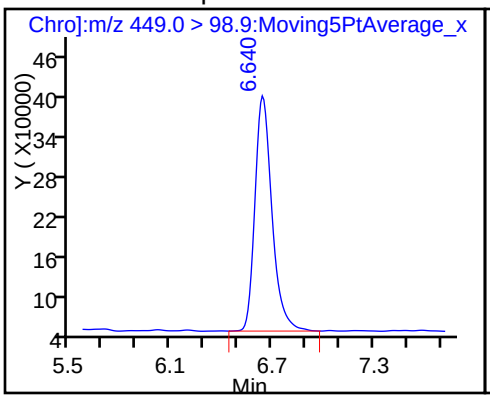
10 Perfluorohexane Sulfonate



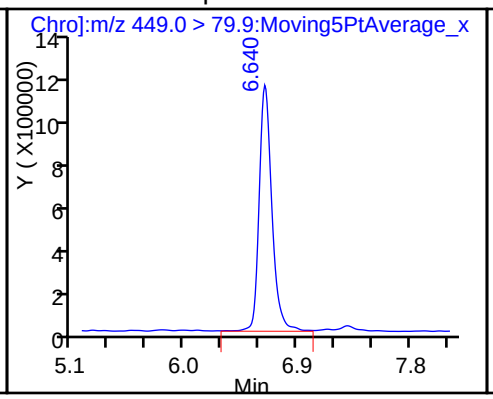
13 Perfluoroheptane Sulfonate



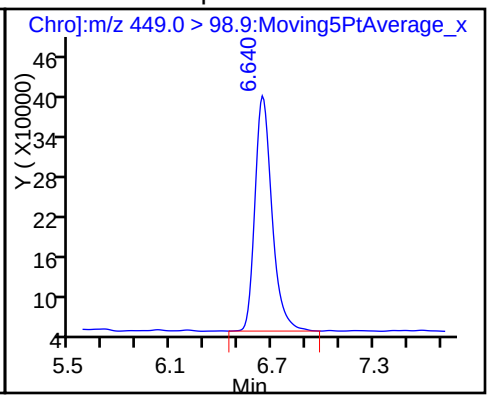
13 Perfluoroheptane Sulfonate



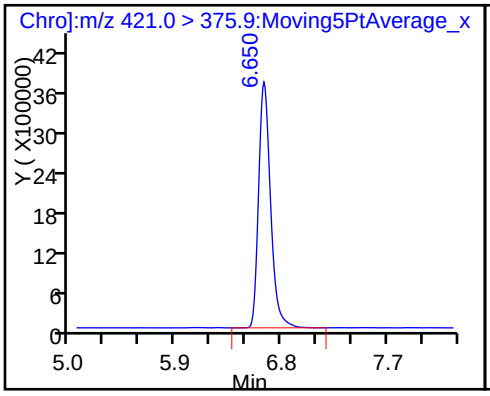
12 Perfluoroheptanesulfonic Acid



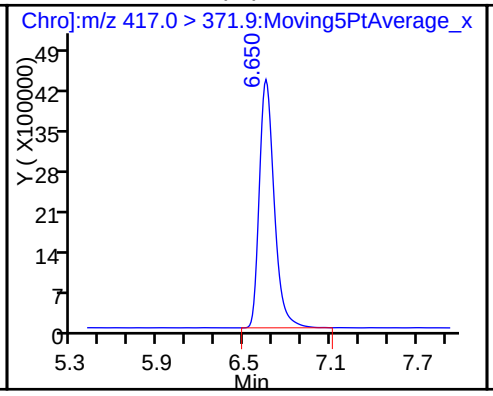
12 Perfluoroheptanesulfonic Acid



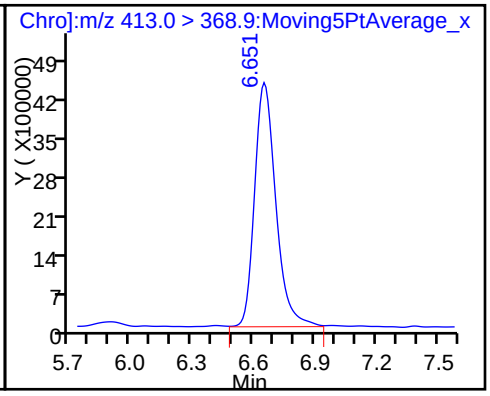
$ 14 13C8 PFOA



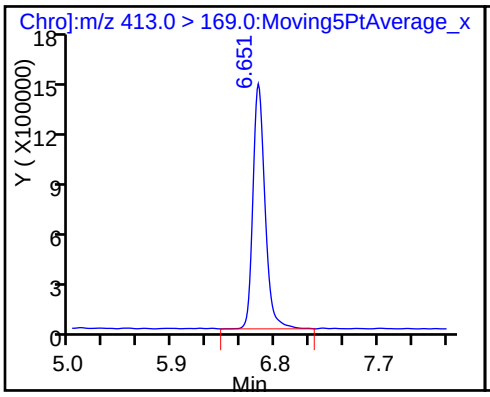
* 15 13C4 PFOA (IS)



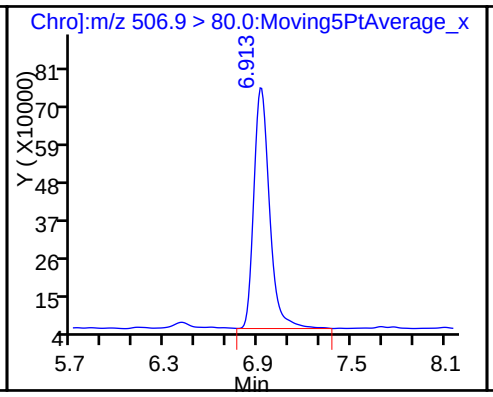
16 Perfluorooctanoic acid



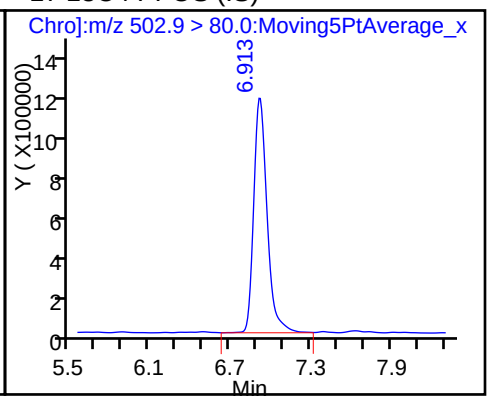
16 Perfluorooctanoic acid



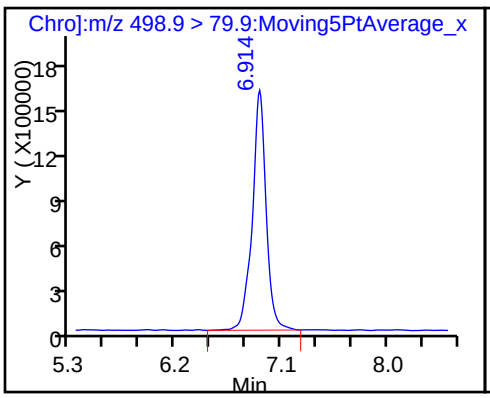
$ 18 13C8 PFOS



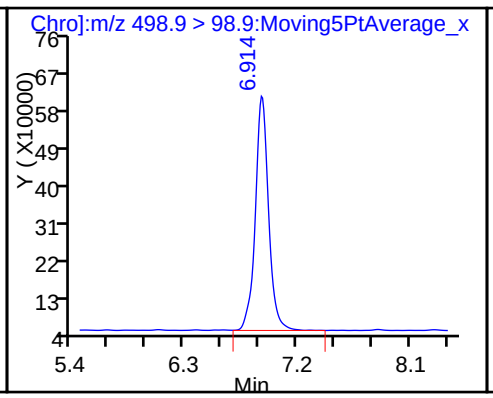
* 17 13C4 PFOS (IS)



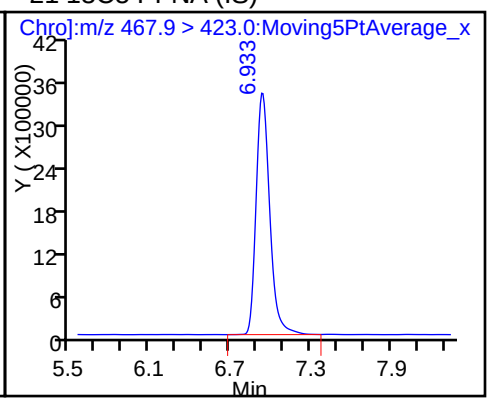
19 Perfluorooctane sulfonic acid



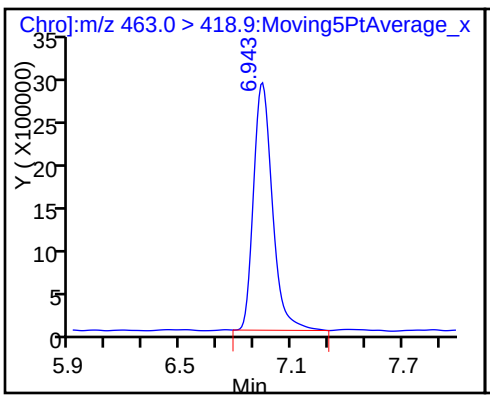
19 Perfluorooctane sulfonic acid



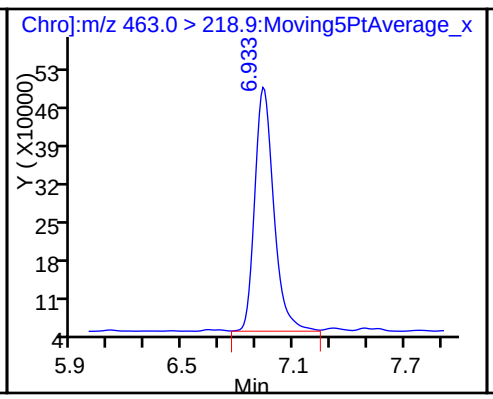
* 21 13C5 PFNA (IS)



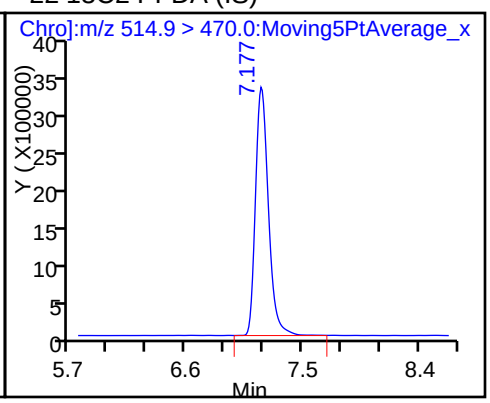
20 Perfluorononanoic acid



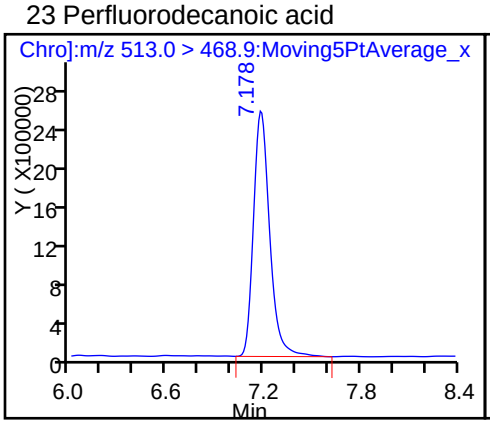
20 Perfluorononanoic acid



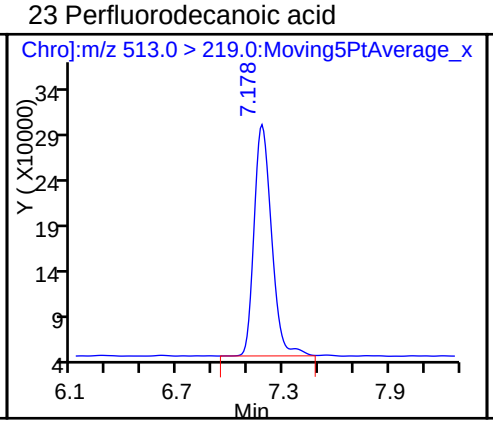
* 22 13C2 PFDA (IS)



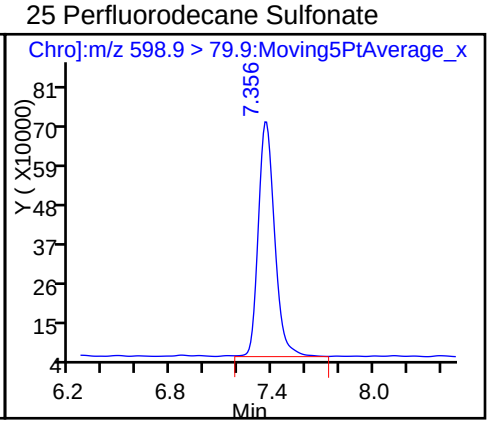
23 Perfluorodecanoic acid



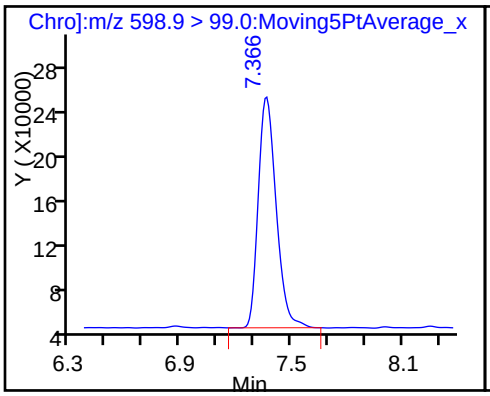
23 Perfluorodecanoic acid



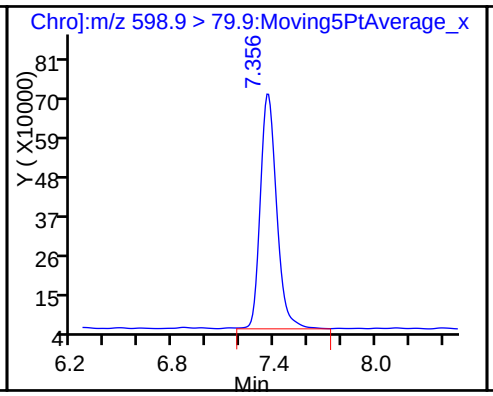
25 Perfluorodecane Sulfonate



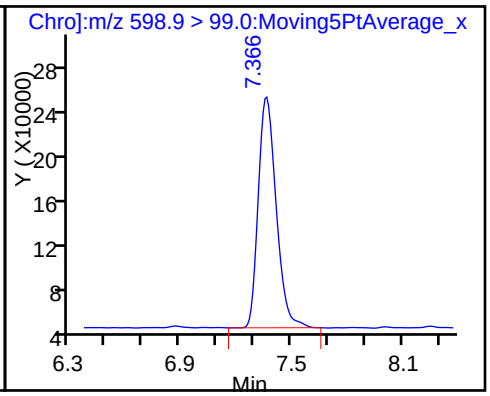
25 Perfluorodecane Sulfonate



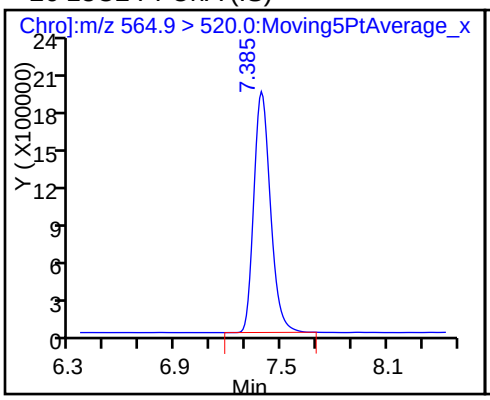
24 Perfluorodecane Sulfonic acid



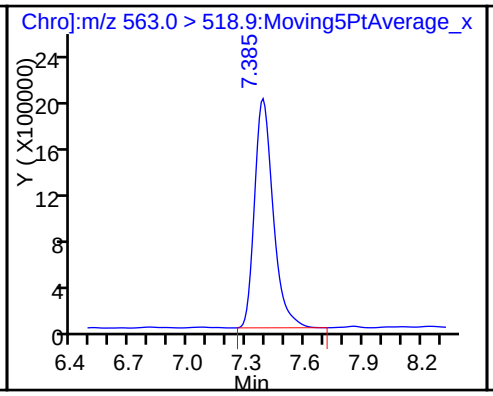
24 Perfluorodecane Sulfonic acid



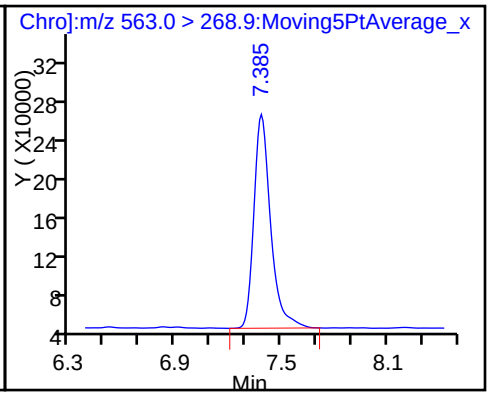
* 26 13C2 PFUnA (IS)



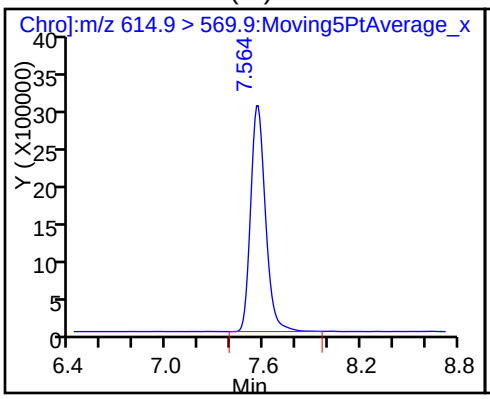
27 Perfluoroundecanoic acid



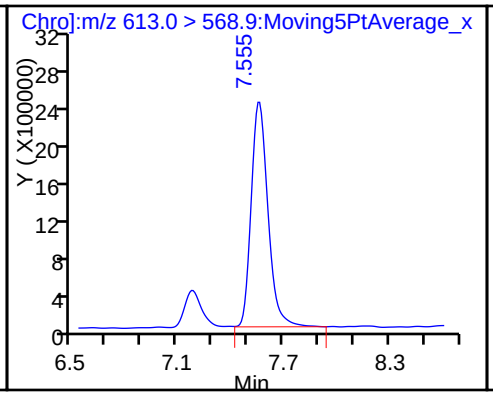
27 Perfluoroundecanoic acid



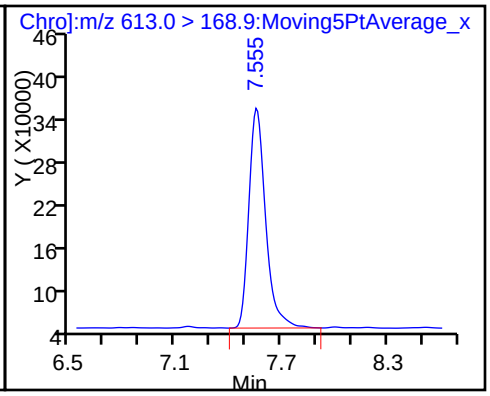
* 28 13C2 PFDoA (IS)



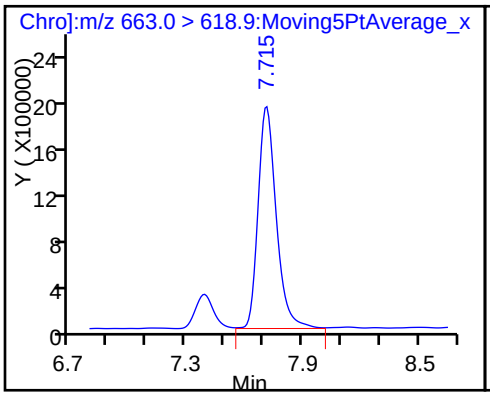
29 Perfluorododecanoic acid



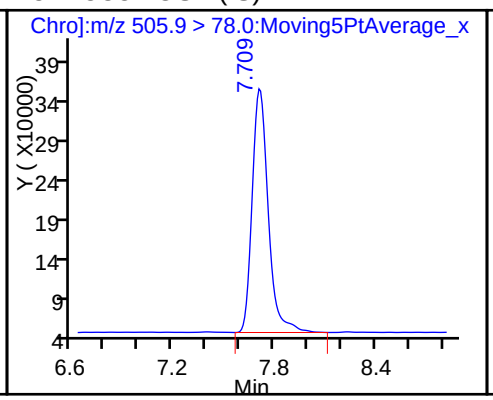
29 Perfluorododecanoic acid



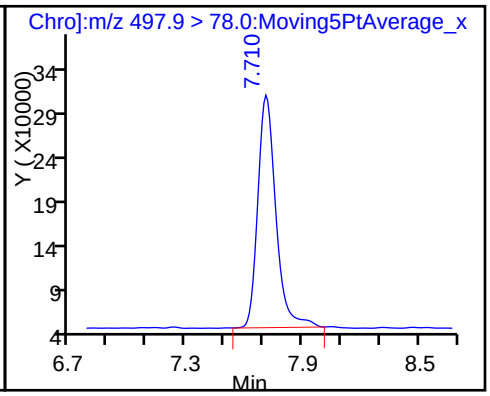
30 Perfluorotridecanoic acid



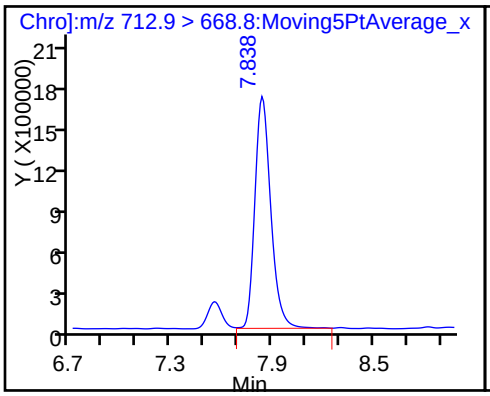
* 31 13C8 FOSA (IS)



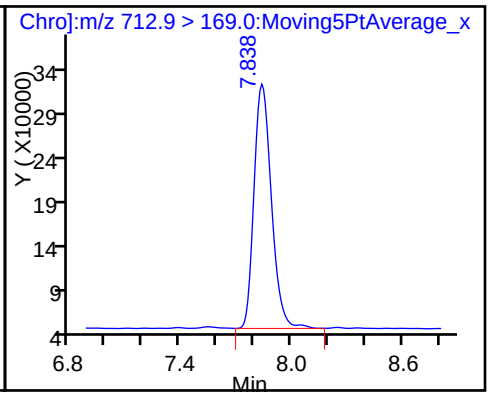
32 Perfluorooctane Sulfonamide



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver | Job No.: 280-85298-1

SDG No.:

Client Sample ID: SWF-OF-013 MSD RE | Lab Sample ID: 280-85298-1 MSD RE

Matrix: Water | Lab File ID: PC516G28054.d

Analysis Method: DV-LC-0012 | Date Collected: 07/05/2016 11:05

Extraction Method: 3535 | Date Extracted: 07/25/2016 10:50

Sample wt/vol: 267.7(mL) | Date Analyzed: 07/28/2016 19:10

Con. Extract Vol.: 5(mL) | Dilution Factor: 1

Injection Volume: 25(uL) | GC Column: Gemini-NX ID:

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 335652 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
29420-43-3	*Perfluorobutane Sulfonate (PFBS)*	*0.166*		*0.019*	*0.0077*
375-85-9	*Perfluoroheptanoic acid (PFHpA)*	*0.185*		*0.028*	*0.012*
108427-53-8	*Perfluorohexane Sulfonate (PFHxS)*	*0.405*		*0.028*	*0.0065*
375-95-1	*Perfluorononanoic acid (PFNA)*	*0.163*		*0.037*	*0.016*
1763-23-1	*Perfluorooctanesulfonic acid (PFOS)*	*0.298*		*0.028*	*0.012*
335-67-1	*Perfluorooctanoic acid (PFOA)*	*0.231*		*0.019*	*0.0091*

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL01052	13C8 PFOA	106		60-155
STL01054	13C8 PFOS	96		45-130

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28054.d
Lims ID: 280-85298-F-1-A MSD
Client ID: SWF-OF-013
Sample Type: MSD
Inject. Date: 28-Jul-2016 19:10:27 ALS Bottle#: 0 Worklist Smp#: 10
Injection Vol: 25.0 ul Dil. Factor: 1.0000
Sample Info: 280-85298-F-1-A MSD, Sample
Operator ID: ACM Instrument ID: LC_LCMS5

Method: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\8321_PFC.m
Limit Group: LC - PFC
Last Update: 29-Jul-2016 10:36:50 Calib Date: 06-Jun-2016 16:28:22
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160607-47603.b\PC516F06016.d

Column 1 : Det: MS QQQ
Process Host: XAWRK010

First Level Reviewer: meyera Date: 29-Jul-2016 09:43:13

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 1 13C4 PFBA (IS)									
216.7 > 172.0	3.944	4.067	-0.123		15821224	10.0			
2 Perfluorobutyric acid									
213.0 > 168.9	3.944	4.068	-0.124	1.000	18250579	10.8			
3 Perfluoropentanoic acid									
263.0 > 218.9	5.119	5.147	-0.028	0.897	22877842	11.6			
4 Perfluorobutane Sulfonate									
298.9 > 79.9	5.241	5.260	-0.019	0.854	9344457	8.87			
298.9 > 98.9	5.241	5.260	-0.019	0.854	2883050		3.24(1.80-3.35)		
5 Perfluorobutanesulfonic acid									
298.9 > 79.9	5.241	5.260	-0.019	0.854	9344457	8.87			
298.9 > 98.9	5.241	5.260	-0.019	0.854	2883050		3.24(2.57-2.57)		
* 6 13C2 PFHxA (IS)									
314.9 > 269.9	5.705	5.724	-0.019		16707457	10.0			
7 Perfluorohexanoic acid									
313.0 > 268.9	5.705	5.724	-0.019	1.000	27485953	17.4			
313.0 > 118.6	5.705	5.724	-0.019	1.000	593761		46.29(34.05-63.23)		
8 Perfluoroheptanoic acid									
363.0 > 318.9	6.131	6.159	-0.028	0.946	21081790	9.91			
363.0 > 168.9	6.131	6.159	-0.028	0.946	5457874		3.86(3.35-6.23)		
* 9 18O2 PFHxS (IS)									
402.9 > 103.0	6.139	6.168	-0.029		1907095	9.46			
11 Perfluorohexanesulfonic acid									
398.9 > 80.0	6.140	6.168	-0.028	1.000	16829911	21.7			
398.9 > 98.9	6.140	6.168	-0.028	1.000	4997161		3.37(1.85-1.85)		
10 Perfluorohexane Sulfonate									R
398.9 > 80.0	6.140	6.168	-0.028	1.000	16829911	21.7			R
398.9 > 98.9	6.140	6.168	-0.028	1.000	4997161		3.37(1.30-2.41)		

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
13 Perfluoroheptane Sulfonate									
449.0 > 79.9	6.470	6.498	-0.028	0.958	8906866	9.58			
449.0 > 98.9	6.470	6.498	-0.028	0.958	2627990		3.39(0.00-0.00)		
12 Perfluoroheptanesulfonic Acid									
449.0 > 79.9	6.470	6.498	-0.028	0.958	8906866	9.58			
449.0 > 98.9	6.470	6.498	-0.028	0.958	2627990		3.39(0.00-0.00)		
$ 14 13C8 PFOA									
421.0 > 375.9	6.480	6.508	-0.028	1.000	20583765	10.4			
* 15 13C4 PFOA (IS)									
417.0 > 371.9	6.480	6.508	-0.028		24445513	10.0			
16 Perfluorooctanoic acid									
413.0 > 368.9	6.480	6.508	-0.028	1.000	31511565	12.4			
413.0 > 169.0	6.480	6.508	-0.028	1.000	9765797		3.23(2.86-5.31)		
$ 18 13C8 PFOS									
506.9 > 80.0	6.752	6.780	-0.028	1.000	4179867	8.91			
* 17 13C4 PFOS (IS)									
502.9 > 80.0	6.752	6.781	-0.029		7334513	9.56			
19 Perfluorooctane sulfonic acid									R
498.9 > 79.9	6.752	6.781	-0.029	1.000	14297351	16.0			R
498.9 > 98.9	6.752	6.781	-0.029	1.000	4865089		2.94(1.31-2.43)		
* 21 13C5 PFNA (IS)									
467.9 > 423.0	6.772	6.801	-0.028		20122077	10.0			
20 Perfluorononanoic acid									
463.0 > 418.9	6.772	6.801	-0.029	1.000	19761459	8.75			
463.0 > 218.9	6.763	6.801	-0.038	0.999	2759123		7.16(5.59-10.38)		
* 22 13C2 PFDA (IS)									
514.9 > 470.0	7.016	7.045	-0.029		17945926	10.0			
23 Perfluorodecanoic acid									R
513.0 > 468.9	7.017	7.045	-0.028	1.000	16953339	9.37			R
513.0 > 219.0	7.017	7.045	-0.028	1.000	1698103		9.98(10.49-19.48)		
25 Perfluorodecane Sulfonate									
598.9 > 79.9	7.205	7.233	-0.028	1.067	4277685	4.49			
598.9 > 99.0	7.205	7.233	-0.028	1.067	1219089		3.51(1.99-3.69)		
24 Perfluorodecane Sulfonic acid									
598.9 > 79.9	7.205	7.233	-0.028	1.067	4277685	4.49			
598.9 > 99.0	7.205	7.233	-0.028	1.067	1219089		3.51(2.84-2.84)		
* 26 13C2 PFUnA (IS)									
564.9 > 520.0	7.234	7.262	-0.028		8975566	10.0			
27 Perfluoroundecanoic acid									R
563.0 > 518.9	7.224	7.262	-0.038	0.999	11103836	8.72			R
563.0 > 268.9	7.224	7.262	-0.038	0.999	1427588		7.78(3.47-6.45)		
* 28 13C2 PFDoA (IS)									s
614.9 > 569.9	7.403	7.441	-0.038		13180759	10.0			
29 Perfluorododecanoic acid									
613.0 > 568.9	7.403	7.441	-0.038	1.000	12336221	9.10			
613.0 > 168.9	7.413	7.441	-0.028	1.001	1588622		7.77(5.96-11.06)		
30 Perfluorotridecanoic acid									
663.0 > 618.9	7.554	7.602	-0.048	1.020	7645340	6.21			

Signal	RT	ADJ RT	DLT RT	REL RT	Response	Amount ug/L	Ratio(Limits)	S/N	Flags
* 31 13C8 FOSA (IS)									s
505.9 > 78.0	7.557	7.557	0.0		1291466	10.0			
32 Perfluorooctane Sulfonamide									
497.9 > 78.0	7.558	7.558	0.0	1.000	1229445	8.77			
33 Perfluorotetradecanoic acid									
712.9 > 668.8	7.696	7.734	-0.038	1.040	5799557	7.44			
712.9 > 169.0	7.696	7.734	-0.038	1.040	833416		6.96(8.28-8.28)		

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

s - Failed ISTD Recovery Test

Report Date: 29-Jul-2016 10:37:14 Chrom Revision: 2.2 04-Mar-2016 14:36:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\LC_LCMS5\20160729-49313.b\PC516G28054.d

Injection Date: 28-Jul-2016 19:10:27 Instrument ID: LC_LCMS5

Lims ID: 280-85298-F-1-A MSD

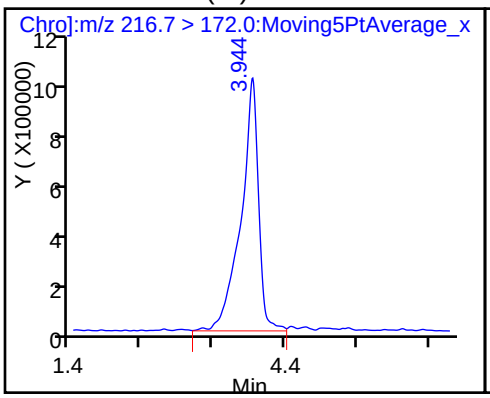
Client ID: SWF-OF-013

Operator ID: ACM ALS Bottle#: 0 Worklist Smp#: 10

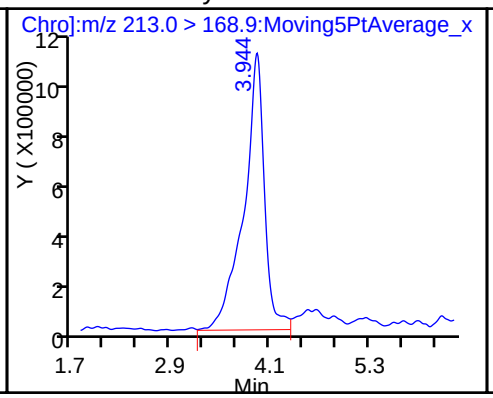
Injection Vol: 25.0 ul Dil. Factor: 1.0000

Method: 8321_PFC Limit Group: LC - PFC

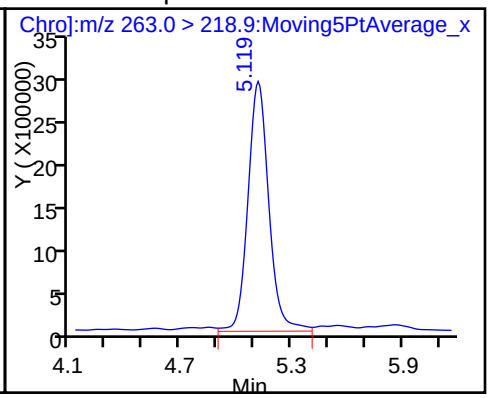
* 1 13C4 PFBA (IS)



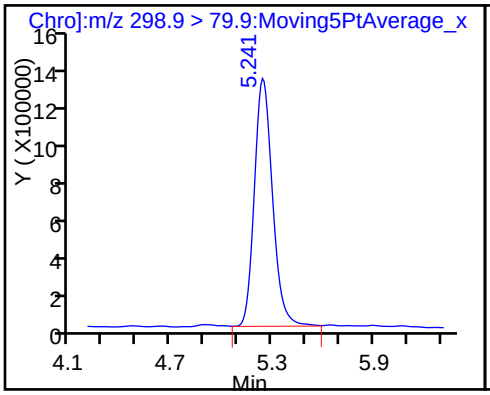
2 Perfluorobutyric acid



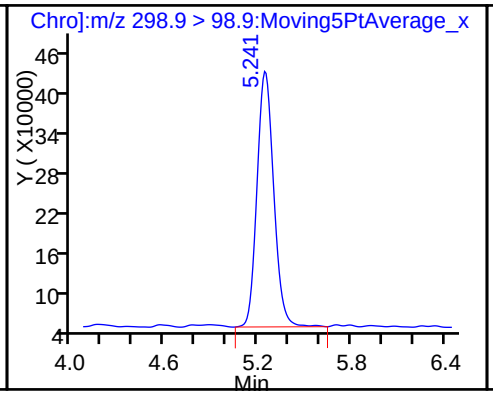
3 Perfluoropentanoic acid



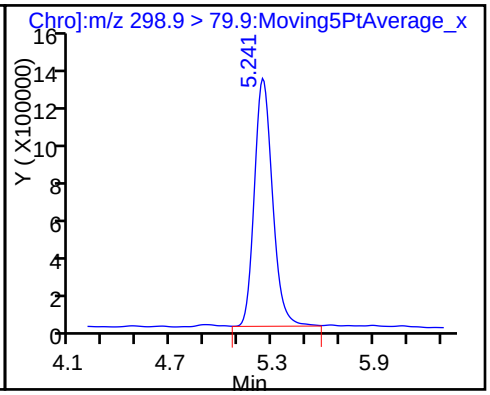
4 Perfluorobutane Sulfonate



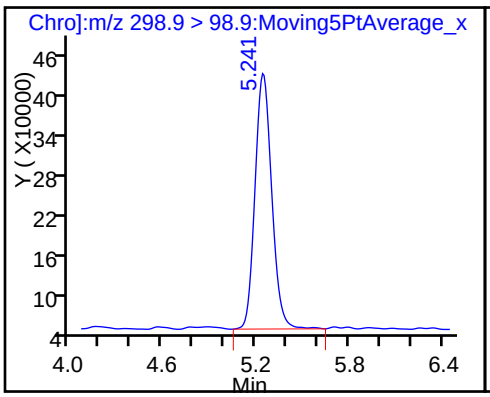
4 Perfluorobutane Sulfonate



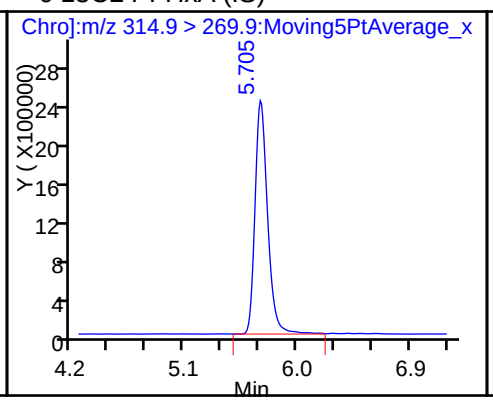
5 Perfluorobutanesulfonic acid



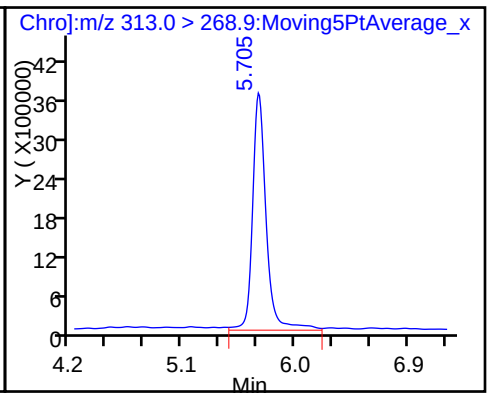
5 Perfluorobutanesulfonic acid



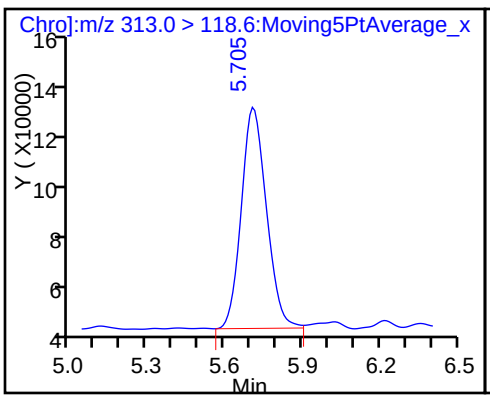
* 6 13C2 PFHxA (IS)



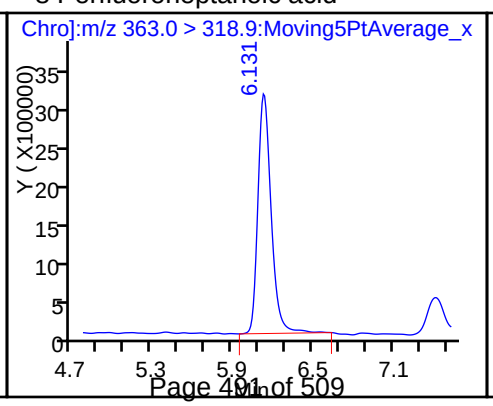
7 Perfluorohexanoic acid



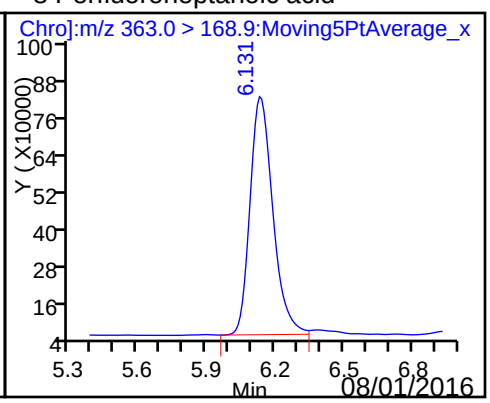
7 Perfluorohexanoic acid



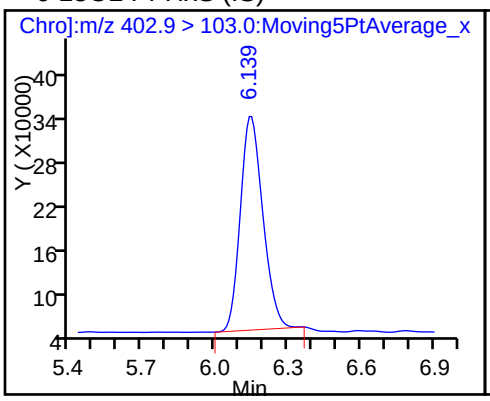
8 Perfluoroheptanoic acid



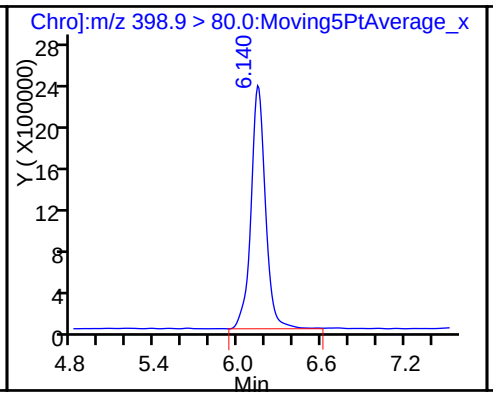
8 Perfluoroheptanoic acid



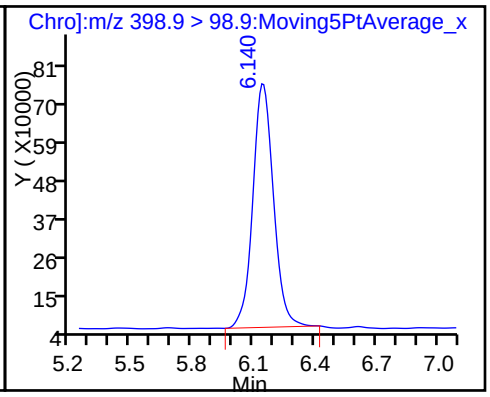
* 9 18O2 PFHxS (IS)



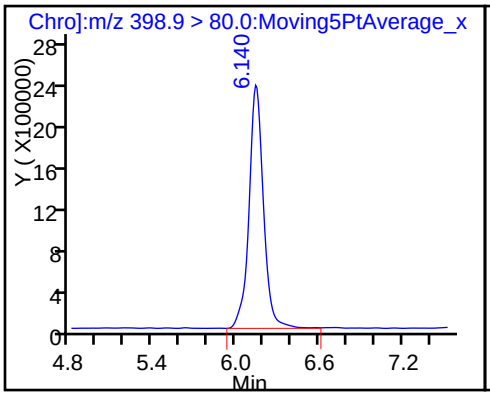
11 Perfluorohexanesulfonic acid



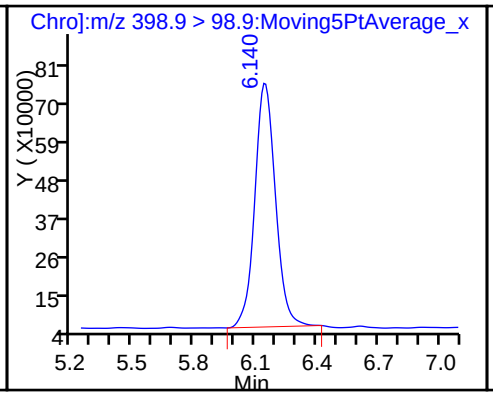
11 Perfluorohexanesulfonic acid



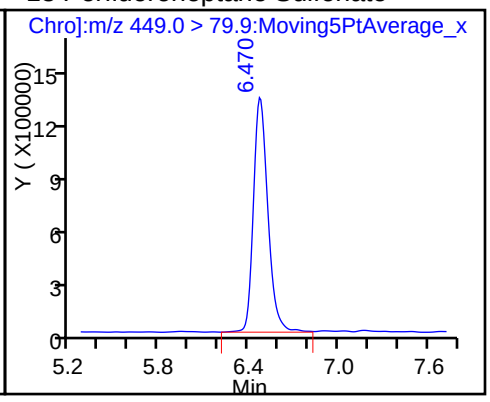
10 Perfluorohexane Sulfonate



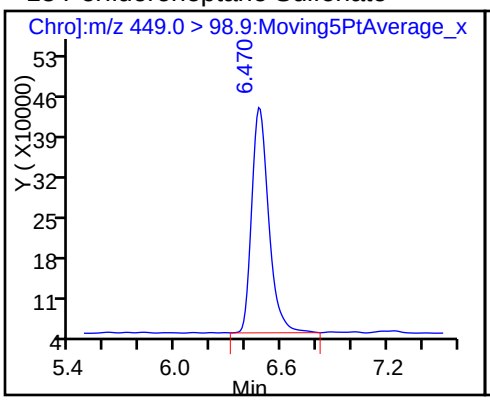
10 Perfluorohexane Sulfonate



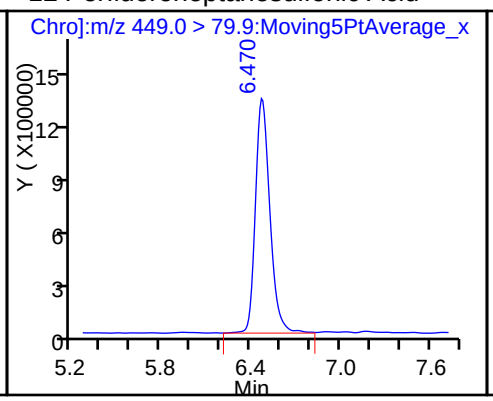
13 Perfluoroheptane Sulfonate



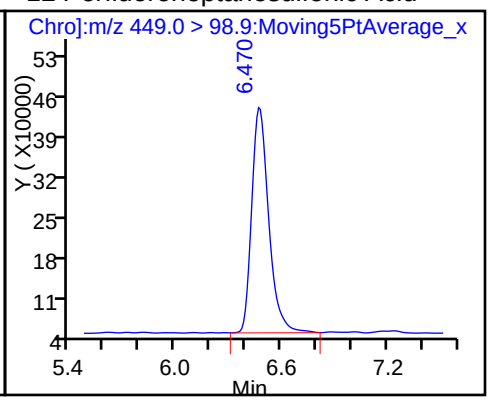
13 Perfluoroheptane Sulfonate



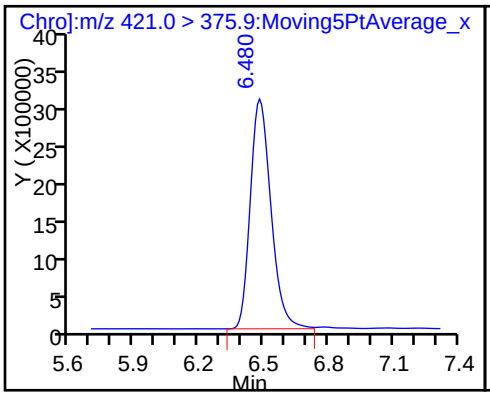
12 Perfluoroheptanesulfonic Acid



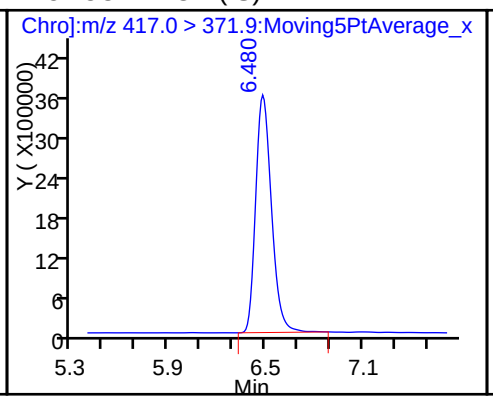
12 Perfluoroheptanesulfonic Acid



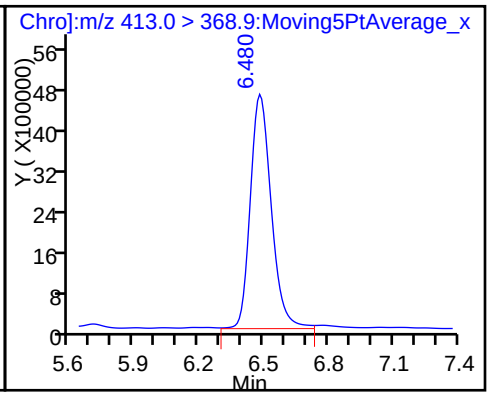
$ 14 13C8 PFOA



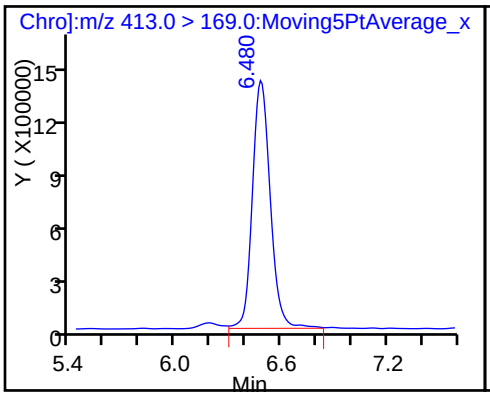
* 15 13C4 PFOA (IS)



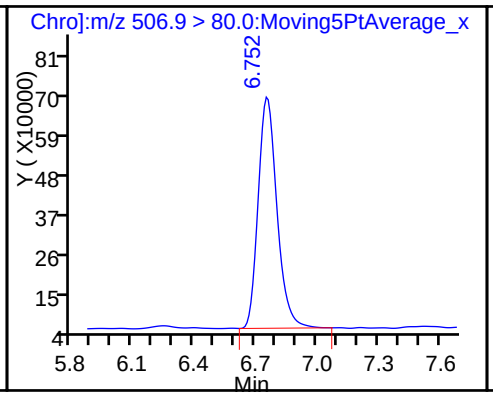
16 Perfluorooctanoic acid



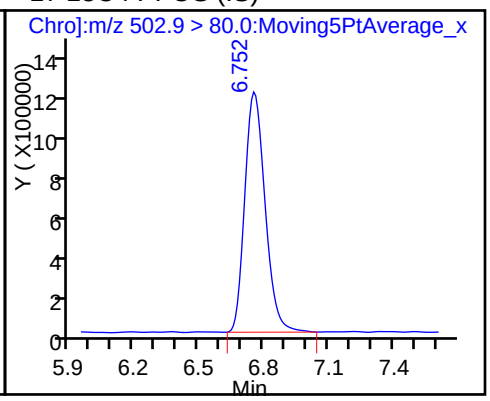
16 Perfluorooctanoic acid



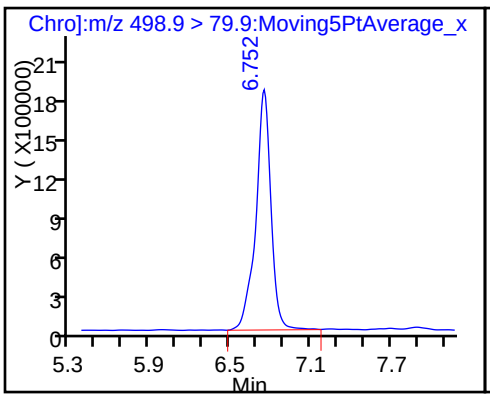
$ 18 13C8 PFOS



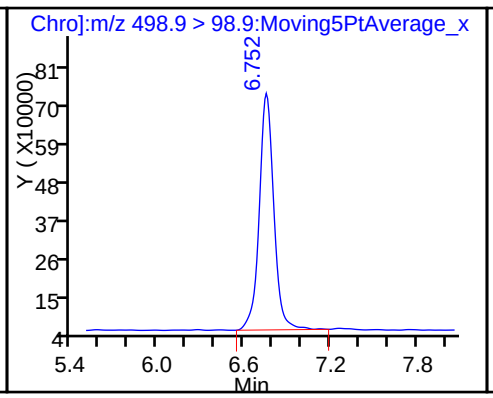
* 17 13C4 PFOS (IS)



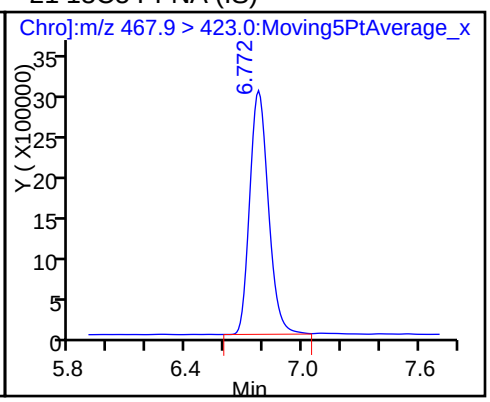
19 Perfluorooctane sulfonic acid



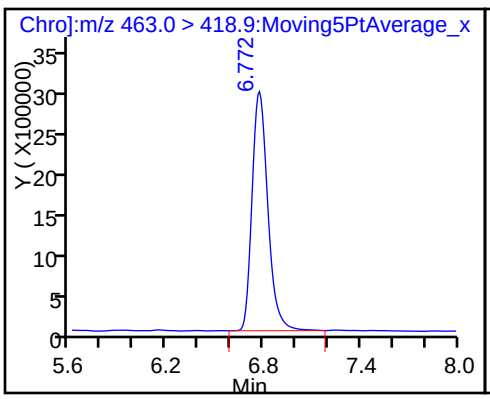
19 Perfluorooctane sulfonic acid



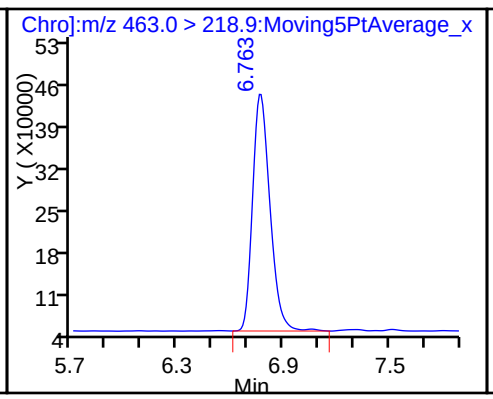
* 21 13C5 PFNA (IS)



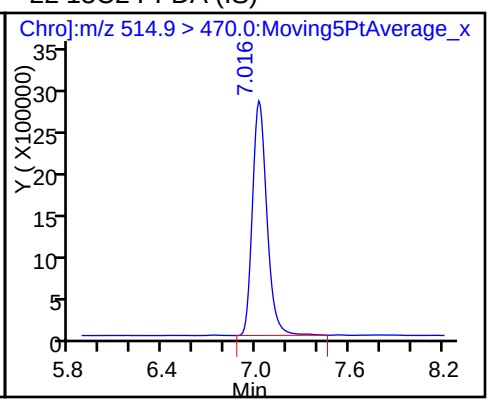
20 Perfluorononanoic acid



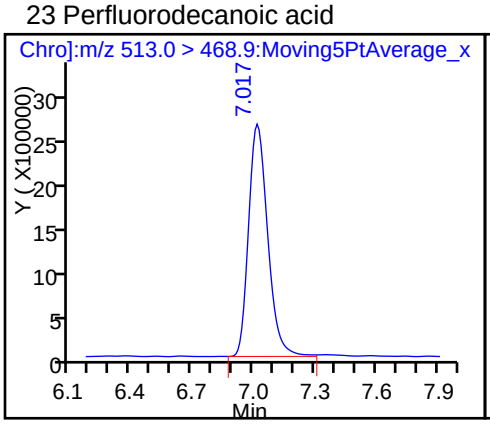
20 Perfluorononanoic acid



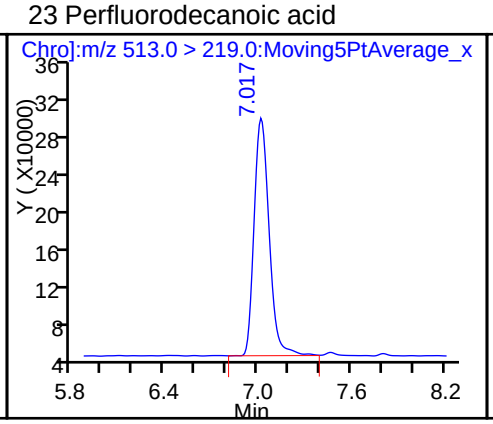
* 22 13C2 PFDA (IS)



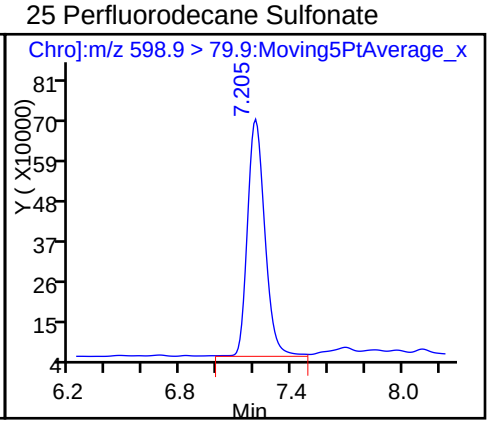
23 Perfluorodecanoic acid



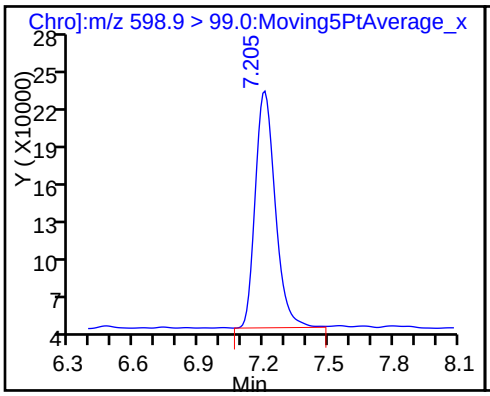
23 Perfluorodecanoic acid



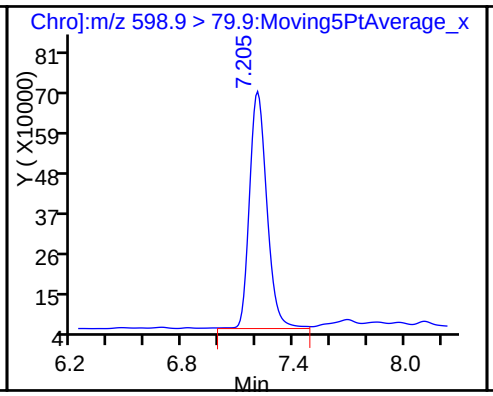
25 Perfluorodecane Sulfonate



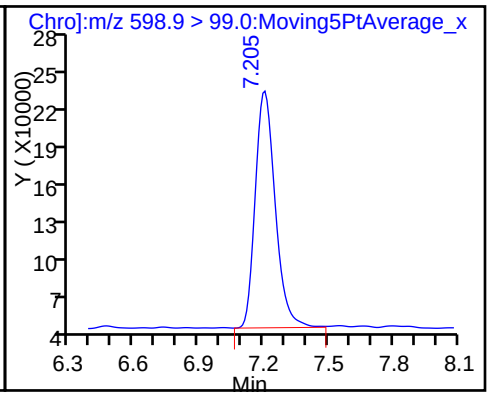
25 Perfluorodecane Sulfonate



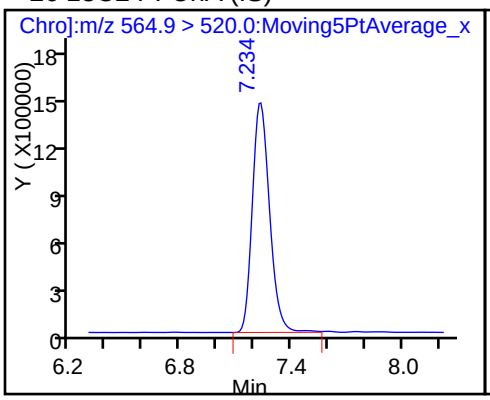
24 Perfluorodecane Sulfonic acid



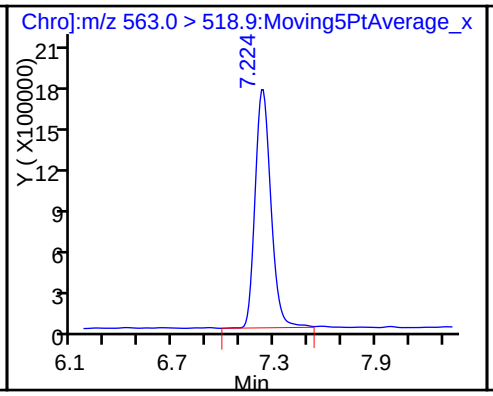
24 Perfluorodecane Sulfonic acid



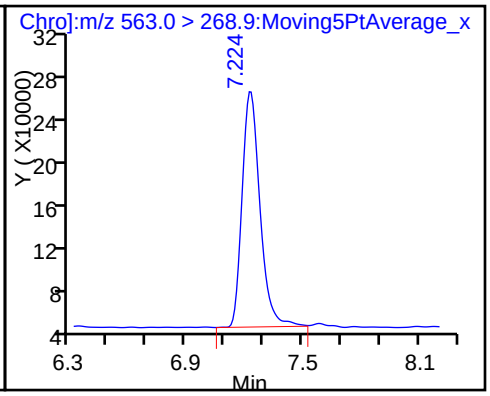
* 26 13C2 PFUnA (IS)



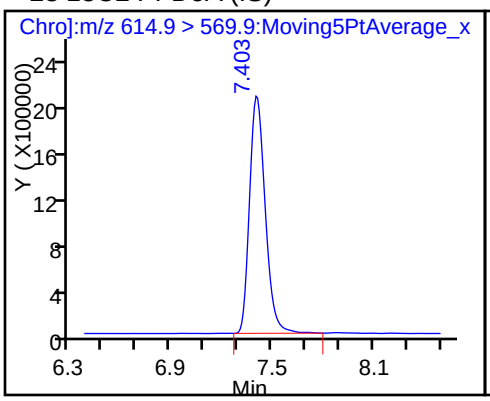
27 Perfluoroundecanoic acid



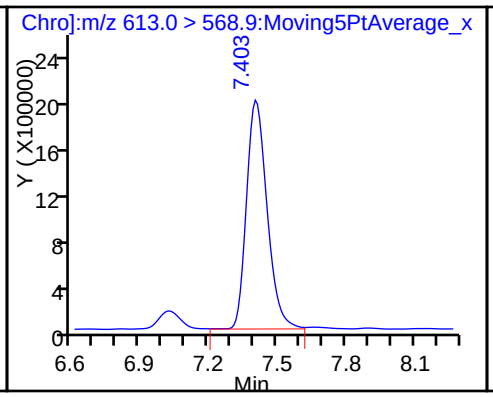
27 Perfluoroundecanoic acid



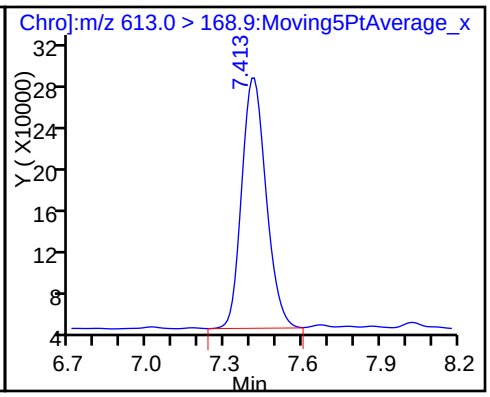
* 28 13C2 PFDoA (IS)



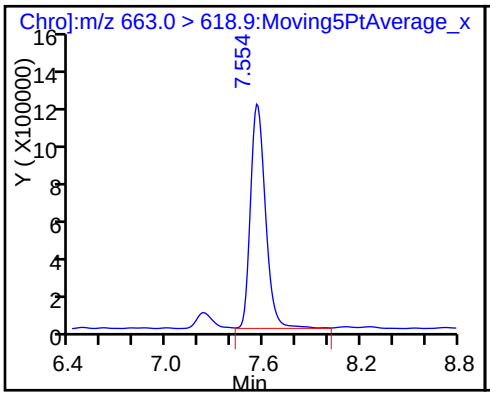
29 Perfluorododecanoic acid



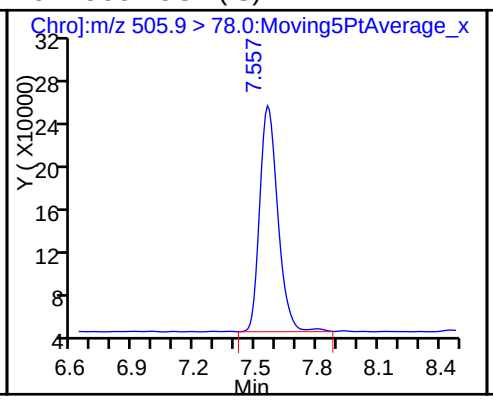
29 Perfluorododecanoic acid



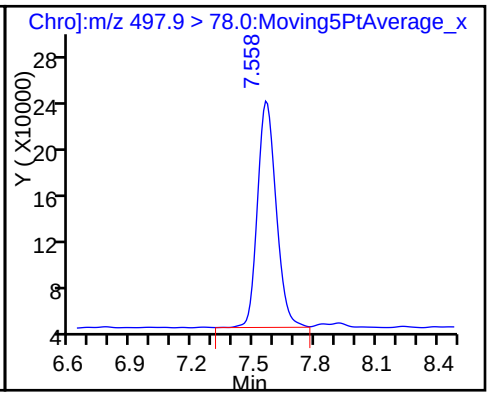
30 Perfluorotridecanoic acid



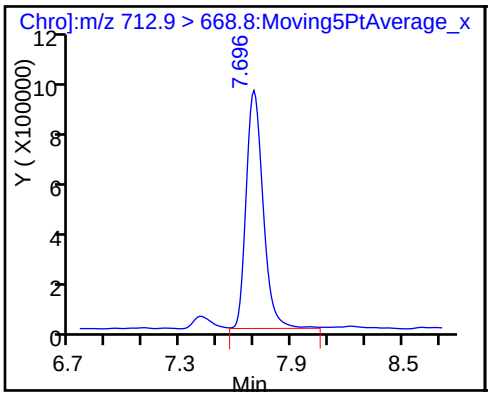
* 31 13C8 FOSA (IS)



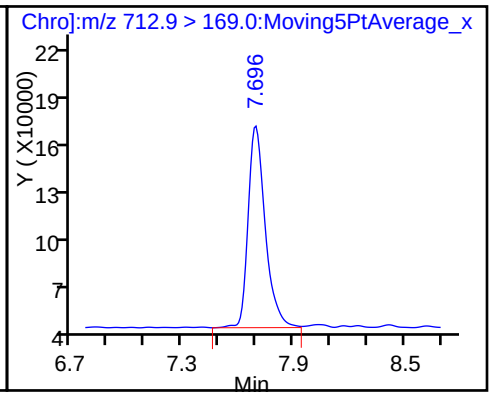
32 Perfluorooctane Sulfonamide



33 Perfluorotetradecanoic acid



33 Perfluorotetradecanoic acid



LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Instrument ID: LC_LCMS5 Start Date: 06/06/2016 14:49

Analysis Batch Number: 328740 End Date: 06/06/2016 19:20

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
STD0002 280-328740/3 IC		06/06/2016 14:49	1	PC516F06008.d	Gemini-NX
STD0005 280-328740/4 IC		06/06/2016 15:02	1	PC516F06009.d	Gemini-NX
STD0010 280-328740/5 IC		06/06/2016 15:14	1	PC516F06010.d	Gemini-NX
STD0020 280-328740/6 ICISAV		06/06/2016 15:26	1	PC516F06011.d	Gemini-NX
STD0050 280-328740/7 IC		06/06/2016 15:39	1	PC516F06012.d	Gemini-NX
STD0100 280-328740/8 IC		06/06/2016 15:51	1	PC516F06013.d	Gemini-NX
STD0200 280-328740/9 IC		06/06/2016 16:03	1	PC516F06014.d	Gemini-NX
STD0500 280-328740/10 IC		06/06/2016 16:16	1	PC516F06015.d	Gemini-NX
STD1250 280-328740/11 IC		06/06/2016 16:28	1	PC516F06016.d	Gemini-NX
ICB 280-328740/12		06/06/2016 16:40	1	PC516F06017.d	Gemini-NX
ICV 280-328740/13		06/06/2016 16:53	1	PC516F06018.d	Gemini-NX
DLCK 280-328740/14		06/06/2016 17:05	1	PC516F06019.d	Gemini-NX
ZZZZZ		06/06/2016 17:17	1		Gemini-NX
ZZZZZ		06/06/2016 17:29	1		Gemini-NX
ZZZZZ		06/06/2016 17:42	1		Gemini-NX
ZZZZZ		06/06/2016 17:54	1		Gemini-NX
ZZZZZ		06/06/2016 18:06	1		Gemini-NX
ZZZZZ		06/06/2016 18:19	1		Gemini-NX
ZZZZZ		06/06/2016 18:31	1		Gemini-NX
ZZZZZ		06/06/2016 18:43	1		Gemini-NX
ZZZZZ		06/06/2016 18:56	1		Gemini-NX
ZZZZZ		06/06/2016 19:08	1		Gemini-NX
CCV 280-328740/25		06/06/2016 19:20	1		Gemini-NX

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Instrument ID: LC_LCMS5 Start Date: 07/18/2016 13:18

Analysis Batch Number: 334166 End Date: 07/18/2016 23:34

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 280-334166/3		07/18/2016 13:18	1		Gemini-NX
ZZZZZ		07/18/2016 13:31	2		Gemini-NX
ZZZZZ		07/18/2016 13:43	1		Gemini-NX
ZZZZZ		07/18/2016 13:55	1		Gemini-NX
ZZZZZ		07/18/2016 14:07	1		Gemini-NX
ZZZZZ		07/18/2016 14:20	1		Gemini-NX
CCV 280-334166/9		07/18/2016 14:32	1		Gemini-NX
ZZZZZ		07/18/2016 14:44	1		Gemini-NX
ZZZZZ		07/18/2016 14:57	1		Gemini-NX
ZZZZZ		07/18/2016 15:09	1		Gemini-NX
ZZZZZ		07/18/2016 15:21	1		Gemini-NX
ZZZZZ		07/18/2016 15:34	1		Gemini-NX
ZZZZZ		07/18/2016 15:46	1		Gemini-NX
ZZZZZ		07/18/2016 15:58	1		Gemini-NX
ZZZZZ		07/18/2016 16:11	1		Gemini-NX
ZZZZZ		07/18/2016 16:23	1		Gemini-NX
ZZZZZ		07/18/2016 16:35	1		Gemini-NX
CCV 280-334166/20		07/18/2016 16:48	1		Gemini-NX
ZZZZZ		07/18/2016 17:00	1		Gemini-NX
ZZZZZ		07/18/2016 17:12	1		Gemini-NX
ZZZZZ		07/18/2016 17:24	1		Gemini-NX
ZZZZZ		07/18/2016 17:37	1		Gemini-NX
ZZZZZ		07/18/2016 17:49	1		Gemini-NX
ZZZZZ		07/18/2016 18:01	1		Gemini-NX
ZZZZZ		07/18/2016 18:14	1		Gemini-NX
ZZZZZ		07/18/2016 18:26	1		Gemini-NX
ZZZZZ		07/18/2016 18:38	1		Gemini-NX
ZZZZZ		07/18/2016 18:51	1		Gemini-NX
CCV 280-334166/31		07/18/2016 19:03	1	PC516G18036.d	Gemini-NX
ZZZZZ		07/18/2016 19:15	1		Gemini-NX
ZZZZZ		07/18/2016 19:27	1		Gemini-NX
ZZZZZ		07/18/2016 19:40	1		Gemini-NX
ZZZZZ		07/18/2016 19:52	1		Gemini-NX
ZZZZZ		07/18/2016 20:04	1		Gemini-NX
ZZZZZ		07/18/2016 20:17	1		Gemini-NX
MB 280-333869/1-A		07/18/2016 20:29	1	PC516G18043.d	Gemini-NX
LCS 280-333869/2-A		07/18/2016 20:41	1	PC516G18044.d	Gemini-NX
280-85298-1		07/18/2016 20:54	1	PC516G18045.d	Gemini-NX
280-85298-1 MS		07/18/2016 21:06	1	PC516G18046.d	Gemini-NX
CCV 280-334166/42		07/18/2016 21:18	1	PC516G18047.d	Gemini-NX
280-85298-1 MSD		07/18/2016 21:31	1	PC516G18048.d	Gemini-NX
280-85298-2		07/18/2016 21:43	1	PC516G18049.d	Gemini-NX
280-85298-3		07/18/2016 21:55	1	PC516G18050.d	Gemini-NX
280-85298-4		07/18/2016 22:07	1	PC516G18051.d	Gemini-NX
280-85298-5		07/18/2016 22:20	1	PC516G18052.d	Gemini-NX

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Instrument ID: LC_LCMS5 Start Date: 07/18/2016 13:18

Analysis Batch Number: 334166 End Date: 07/18/2016 23:34

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
280-85298-6		07/18/2016 22:32	1	PC516G18053.d	Gemini-NX
280-85298-7		07/18/2016 22:44	1	PC516G18054.d	Gemini-NX
280-85298-8		07/18/2016 22:57	1	PC516G18055.d	Gemini-NX
280-85298-9		07/18/2016 23:09	1	PC516G18056.d	Gemini-NX
280-85298-10		07/18/2016 23:21	1	PC516G18057.d	Gemini-NX
CCV 280-334166/53		07/18/2016 23:34	1	PC516G18058.d	Gemini-NX

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Instrument ID: LC_LCMS5 Start Date: 07/20/2016 18:28

Analysis Batch Number: 334502 End Date: 07/20/2016 20:43

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 280-334502/3		07/20/2016 18:28	1	PC516G20062.d	Gemini-NX
280-85298-11		07/20/2016 18:40	1	PC516G20063.d	Gemini-NX
280-85298-12		07/20/2016 18:52	1	PC516G20064.d	Gemini-NX
280-85298-13		07/20/2016 19:04	1	PC516G20065.d	Gemini-NX
280-85298-14		07/20/2016 19:17	1	PC516G20066.d	Gemini-NX
ZZZZZ		07/20/2016 19:29	1		Gemini-NX
ZZZZZ		07/20/2016 19:41	1		Gemini-NX
ZZZZZ		07/20/2016 19:54	1		Gemini-NX
ZZZZZ		07/20/2016 20:06	1		Gemini-NX
ZZZZZ		07/20/2016 20:18	1		Gemini-NX
ZZZZZ		07/20/2016 20:31	1		Gemini-NX
CCV 280-334502/14		07/20/2016 20:43	1	PC516G20073.d	Gemini-NX

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Instrument ID: LC_LCMS5 Start Date: 07/28/2016 17:44

Analysis Batch Number: 335652 End Date: 07/28/2016 23:16

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 280-335652/3		07/28/2016 17:44	1	PC516G28047.d	Gemini-NX
ZZZZZ		07/28/2016 17:56	5		Gemini-NX
ZZZZZ		07/28/2016 18:08	10		Gemini-NX
MB 280-334942/1-A		07/28/2016 18:21	1	PC516G28050.d	Gemini-NX
LCS 280-334942/2-A		07/28/2016 18:33	1	PC516G28051.d	Gemini-NX
280-85298-1 RE		07/28/2016 18:45	1	PC516G28052.d	Gemini-NX
280-85298-1 MS RE		07/28/2016 18:58	1	PC516G28053.d	Gemini-NX
280-85298-1 MSD RE		07/28/2016 19:10	1	PC516G28054.d	Gemini-NX
280-85298-2 RE		07/28/2016 19:22	1	PC516G28055.d	Gemini-NX
280-85298-3 RE		07/28/2016 19:35	1	PC516G28056.d	Gemini-NX
280-85298-4 RE		07/28/2016 19:47	1	PC516G28057.d	Gemini-NX
CCV 280-335652/14		07/28/2016 19:59	1	PC516G28058.d	Gemini-NX
280-85298-5 RE		07/28/2016 20:11	1	PC516G28059.d	Gemini-NX
280-85298-6 RE		07/28/2016 20:24	1	PC516G28060.d	Gemini-NX
280-85298-7 RE		07/28/2016 20:36	1	PC516G28061.d	Gemini-NX
280-85298-8 RE		07/28/2016 20:48	1	PC516G28062.d	Gemini-NX
280-85298-9 RE		07/28/2016 21:01	1	PC516G28063.d	Gemini-NX
280-85298-10 RE		07/28/2016 21:13	1	PC516G28064.d	Gemini-NX
280-85298-11 RE		07/28/2016 21:25	1	PC516G28065.d	Gemini-NX
280-85298-12 RE		07/28/2016 21:38	1	PC516G28066.d	Gemini-NX
CCV 280-335652/23		07/28/2016 21:50	1	PC516G28067.d	Gemini-NX
280-85298-13 RE		07/28/2016 22:02	1	PC516G28068.d	Gemini-NX
280-85298-14 RE		07/28/2016 22:15	1	PC516G28069.d	Gemini-NX
ZZZZZ		07/28/2016 22:27	1		Gemini-NX
ZZZZZ		07/28/2016 22:39	1		Gemini-NX
ZZZZZ		07/28/2016 22:52	1		Gemini-NX
ZZZZZ		07/28/2016 23:04	1		Gemini-NX
CCV 280-335652/30		07/28/2016 23:16	1	PC516G28074.d	Gemini-NX

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Batch Number: 333869 Batch Start Date: 07/16/16 07:25 Batch Analyst: Frey, Alan C

Batch Method: 3535 Batch End Date: 07/16/16 11:00

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	PFC-LCS 00082	PFC_Surr&IS 00023
MB 280-333869/1		3535, DV-LC-0012				250 mL	5 mL		0.1 mL
LCS 280-333869/2		3535, DV-LC-0012				250 mL	5 mL	0.1 mL	0.1 mL
280-85298-B-1	SWF-OF-013	3535, DV-LC-0012	T	287.0 g	33.1 g	253.9 mL	5 mL		0.1 mL
280-85298-D-1 MS	SWF-OF-013	3535, DV-LC-0012	T	280.3 g	30.1 g	250.2 mL	5 mL	0.1 mL	0.1 mL
280-85298-A-1 MSD	SWF-OF-013	3535, DV-LC-0012	T	277.5 g	29.1 g	248.4 mL	5 mL	0.1 mL	0.1 mL
280-85298-B-2	SWF-OF	3535, DV-LC-0012	T	281.9 g	29.9 g	252 mL	5 mL		0.1 mL
280-85298-B-3	SWF-OF-011	3535, DV-LC-0012	T	283.6 g	28.3 g	255.3 mL	5 mL		0.1 mL
280-85298-A-4	SWF-OF-008	3535, DV-LC-0012	T	282.2 g	29.2 g	253 mL	5 mL		0.1 mL
280-85298-B-5	SWF-OF-010	3535, DV-LC-0012	T	279.4 g	29.3 g	250.1 mL	5 mL		0.1 mL
280-85298-B-6	SWF-OF-005	3535, DV-LC-0012	T	279.4 g	29.0 g	250.4 mL	5 mL		0.1 mL
280-85298-B-7	SWF-OF-003	3535, DV-LC-0012	T	271.6 g	27.7 g	243.9 mL	5 mL		0.1 mL
280-85298-B-8	SWF-FB-6	3535, DV-LC-0012	T	280.2 g	31.1 g	249.1 mL	5 mL		0.1 mL
280-85298-B-9	SWF-WB-3	3535, DV-LC-0012	T	279.5 g	31.2 g	248.3 mL	5 mL		0.1 mL
280-85298-B-10	DBF-MW-3	3535, DV-LC-0012	T	281.3 g	30.0 g	251.3 mL	5 mL		0.1 mL
280-85298-B-11	DBF-MW-4	3535, DV-LC-0012	T	277.1 g	28.3 g	248.8 mL	5 mL		0.1 mL
280-85298-B-12	FB-7	3535, DV-LC-0012	T	276.0 g	27.4 g	248.6 mL	5 mL		0.1 mL
280-85298-A-13	DBF-MW-5	3535, DV-LC-0012	T	300.6 g	27.1 g	273.5 mL	5 mL		0.1 mL
280-85298-B-14	DBF-MW-1	3535, DV-LC-0012	T	302.4 g	27.1 g	275.3 mL	5 mL		0.1 mL

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Batch Number: 333869 Batch Start Date: 07/16/16 07:25 Batch Analyst: Frey, Alan C

Batch Method: 3535 Batch End Date: 07/16/16 11:00

Batch Notes	
Acid ID	2% Formic Aci_00093
Acid Name	2% Formic Acid
Balance ID	24950441
Batch Comment	Reviewed by:
First End time	7.16.16@0935
H2O ID	HPLC_Water_00643
Pipette ID	O, SPE-1
Reagent ID	10% Ammonium Hydroxide
Reagent Lot Number	10%_NH4OH_00072
Solvent Name	Methanol
SOP Number	DV-OP-0019
SPE Cartridge Type	Phenomenex Strata X-AW
Solid Phase Extraction Disk ID	S308-0064
First Start time	7.16.16@0745

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Batch Number: 334942 Batch Start Date: 07/25/16 10:50 Batch Analyst: Choi, Yu J

Batch Method: 3535 Batch End Date: 07/25/16 17:05

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	PFC-LCS 00082	PFC_Surr&IS 00024
MB 280-334942/1		3535, DV-LC-0012				250 mL	5 mL		0.1 mL
LCS 280-334942/2		3535, DV-LC-0012				250 mL	5 mL	0.1 mL	0.1 mL
280-85298-E-1	SWF-OF-013	3535, DV-LC-0012	T	282.8 g	27.4 g	255.4 mL	5 mL		0.1 mL
280-85298-C-1 MS	SWF-OF-013	3535, DV-LC-0012	T	297.1 g	27.0 g	270.1 mL	5 mL	0.1 mL	0.1 mL
280-85298-F-1 MSD	SWF-OF-013	3535, DV-LC-0012	T	295.7 g	28.0 g	267.7 mL	5 mL	0.1 mL	0.1 mL
280-85298-A-2	SWF-OF	3535, DV-LC-0012	T	303.8 g	28.0 g	275.8 mL	5 mL		0.1 mL
280-85298-A-3	SWF-OF-011	3535, DV-LC-0012	T	277.4 g	27.3 g	250.1 mL	5 mL		0.1 mL
280-85298-B-4	SWF-OF-008	3535, DV-LC-0012	T	304.0 g	27.9 g	276.1 mL	5 mL		0.1 mL
280-85298-A-5	SWF-OF-010	3535, DV-LC-0012	T	300.1 g	27.1 g	273 mL	5 mL		0.1 mL
280-85298-A-6	SWF-OF-005	3535, DV-LC-0012	T			255.8 mL	5 mL		0.1 mL
280-85298-A-7	SWF-OF-003	3535, DV-LC-0012	T			257.4 mL	5 mL		0.1 mL
280-85298-A-8	SWF-FB-6	3535, DV-LC-0012	T	297.7 g	27.2 g	270.5 mL	5 mL		0.1 mL
280-85298-A-9	SWF-WB-3	3535, DV-LC-0012	T	299.7 g	27.2 g	272.5 mL	5 mL		0.1 mL
280-85298-A-10	DBF-MW-3	3535, DV-LC-0012	T	290.7 g	26.8 g	263.9 mL	5 mL		0.1 mL
280-85298-A-11	DBF-MW-4	3535, DV-LC-0012	T			231.2 mL	5 mL		0.1 mL
280-85298-A-12	FB-7	3535, DV-LC-0012	T	264.8 g	26.6 g	238.2 mL	5 mL		0.1 mL
280-85298-B-13	DBF-MW-5	3535, DV-LC-0012	T			259.9 mL	5 mL		0.1 mL
280-85298-A-14	DBF-MW-1	3535, DV-LC-0012	T	283.3 g	27.3 g	256 mL	5 mL		0.1 mL

Lab Sample ID	Client Sample ID	Method Chain	Basis	AnalysisComment
MB 280-334942/1		3535, DV-LC-0012		

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Batch Number: 334942 Batch Start Date: 07/25/16 10:50 Batch Analyst: Choi, Yu J

Batch Method: 3535 Batch End Date: 07/25/16 17:05

Lab Sample ID	Client Sample ID	Method Chain	Basis	AnalysisComment					
LCS 280-334942/2		3535, DV-LC-0012							
280-85298-E-1	SWF-OF-013	3535, DV-LC-0012	T						
280-85298-C-1 MS	SWF-OF-013	3535, DV-LC-0012	T						
280-85298-F-1 MSD	SWF-OF-013	3535, DV-LC-0012	T						
280-85298-A-2	SWF-OF	3535, DV-LC-0012	T						
280-85298-A-3	SWF-OF-011	3535, DV-LC-0012	T						
280-85298-B-4	SWF-OF-008	3535, DV-LC-0012	T						
280-85298-A-5	SWF-OF-010	3535, DV-LC-0012	T						
280-85298-A-6	SWF-OF-005	3535, DV-LC-0012	T	Decant					
280-85298-A-7	SWF-OF-003	3535, DV-LC-0012	T						
280-85298-A-8	SWF-FB-6	3535, DV-LC-0012	T						
280-85298-A-9	SWF-WB-3	3535, DV-LC-0012	T						
280-85298-A-10	DBF-MW-3	3535, DV-LC-0012	T						
280-85298-A-11	DBF-MW-4	3535, DV-LC-0012	T	Decant					
280-85298-A-12	FB-7	3535, DV-LC-0012	T						
280-85298-B-13	DBF-MW-5	3535, DV-LC-0012	T	Decant					
280-85298-A-14	DBF-MW-1	3535, DV-LC-0012	T						

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Denver Job No.: 280-85298-1

SDG No.:

Batch Number: 334942 Batch Start Date: 07/25/16 10:50 Batch Analyst: Choi, Yu J

Batch Method: 3535 Batch End Date: 07/25/16 17:05

Batch Notes	
Acid ID	2% Formic Aci_00094
Acid Name	2% Formic Acid
Balance ID	24950441
Batch Comment	Reviewed by: KI
First End time	7.25.16 1531
H2O ID	HPLC_Water_00646
Pipette ID	M, SPE-1
Reagent ID	10% Ammonium Hydroxide
Reagent Lot Number	10%_NH4OH_00073
Solvent Name	Methanol
SOP Number	DV-OP-0019
SPE Cartridge Type	Phenomenex Strata X-AW
Solid Phase Extraction Disk ID	S308-0064
First Start time	7.25.16 1303

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Shipping and Receiving Documents

Chain of Custody Record

5161R5-0.0 07Jul16 Transfer

Temperature on Receipt _____

Drinking Water? Yes ☐ No ☒

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TAL-4124 (1007)

Client: HDR	Project Manager: Melissa LaMacchia	Date: 7/6/16	Chain of Custody Number: 296281
Address: 1 International Blvd 10th Floor	Telephone Number (Area Code)/Fax Number: (201) 335-9300	Lab Number:	Page 1 of 2
City: Mahwah / State: NJ / Zip Code: 07495	Site Contact: Melissa LaMacchia	Lab Contact: Sapna Nayyar	
Project Name and Location (State): Stewart Int Airport (PFAS)	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.: 32008249			

Analysis (Attach list if more space is needed): PFC_IDA-PFAS (UCMR List)

Special Instructions/ Conditions of Receipt

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	PFC_IDA-PFAS (UCMR List)	Special Instructions/ Conditions of Receipt
SWF-OF-Φ13	7/5/16	1105		X			6						6	6 bottles total (MS/MSD)
SWF-OF	7/5/16	1130		X			2						2	
SWF-OF-Φ11	7/5/16	1140		X			2						2	
SWF-OF-ΦΦ8	7/5/16	1205		X			2						2	
SWF-OF-Φ10	7/5/16	1235		X			2						2	
SWF-OF-ΦΦ5	7/5/16	1300		X			2						2	
SWF-OF-ΦΦ3	7/5/16	1325		X			2						2	
SWF-FB-6	7/5/16	1400		X			2						2	rinsate blank
SWF-WB-3	7/5/16	1430		X			2						2	decon water blank

280-85298 Chain of Custody

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other 15 day

QC Requirements (Specify): NYSDEC Cat B

	Date	Time		Date	Time
1. Relinquished By	7/6/16	1530	1. Received By	07Jul16	0925
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Chain of Custody Record

Temperature on Receipt _____

Drinking Water? Yes ☐ No ☒

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TAL-4124 (1007)

Client	Project Manager	Date	Chain of Custody Number
HDR	Melissa LaMacchia	7/6/16	296282
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 2 of 2**
1 International Blvd. 10th Floor	(201) 335-9300		
City / State / Zip Code	**Site Contact / Lab Contact**	**Analysis (Attach list if more space is needed)**	
Mahwah / NJ / 07495	Melissa LaMacchia / Sapna Nayyar	PFC - IDA - PFAS (UCMR List)	
Project Name and Location (State)	**Carrier/Waybill Number**		
Stewart Int. Airport (PFAS)			
Contract/Purchase Order/Quote No.			
32008249			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	PFC - IDA - PFAS (UCMR List)	Special Instructions/ Conditions of Receipt
DBF-MW-3	7/6/16	1145		X			X						2	
DBF-MW-4	7/6/16	1235		X			X						2	
FB-7	7/6/16	1154		X			X						2	
DBF-MW-5	7/6/16	1335		X			X						2	
DBF-MW-1	7/6/16	1417		X			X						2	

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Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other 15 Day

QC Requirements (Specify)
NYSDEC Cat B

	Relinquished By	Date	Time	Received By	Date	Time
1.		7/6/16	1530		07Jul16	0925
2.						
3.						

Comments

08/01/2016

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Login Sample Receipt Checklist

Client: HDR Inc

Job Number: 280-85298-1

Login Number: 85298
List Number: 1
Creator: Muniz, Ashley T

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Field left blank
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	